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HARVARD UNIVERSITY

THE
SUMMER SCHOOL
OF
ARTS AND SCIENCES

ANNOUNCEMENT FOR 1901
CATALOGUE OF STUDENTS IN 1900



CAMBRIDGE
Published by the University
1901

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COMMITTEE IN CHARGE OF THE SUMMER SCHOOL OF
ARTS AND SCIENCES.

N. S. SHALER, S.D., *Professor of Geology, and Dean of the Lawrence Scientific School, Chairman.*

PAUL H. HANUS, S.B., *Assistant Professor of the Theory and Practice of Education.*

CHARLES R. SANGER, A.M., PH.D., *Assistant Professor of Chemistry.*

J. L. LOVE, A.M., *Instructor in Mathematics, and Secretary of the Lawrence Scientific School.*

BYRON S. HURLBUT, A.M., *Instructor in English, and Recording Secretary of the University.*

Clerk of the Summer School, J. L. LOVE, A.M.

Office: 16 University Hall, Cambridge, Mass.

Office hours: from July 2 to 6, 8 A.M. to 9 P.M.; after July 6, 8 A.M. to 5 P.M., Saturday, 8 A.M. to 12 M.

The Summer Courses of Instruction at Harvard University, with the exception of those given in the Medical School and the Divinity School, are under the charge of a committee of the Faculty of Arts and Sciences.

SUMMER SCHOOL OF ARTS AND SCIENCES.

GENERAL STATEMENT.

LIST OF COURSES.

During the summer of 1901 courses of instruction will be given as follows : —

Greek, one course :

Greek for Beginners.

Latin, one course :

Course for Teachers.

English, seven courses :

Elementary Composition ;

Advanced Composition ;

Second Advanced Composition ;

Anglo-Saxon ;

Shakspeare ;

English Literature of the Eighteenth Century ;

English Literature, in Outline, from Anglo-Saxon Times
to the Present.

Public Speaking and Reading, one course :

For Teachers, Speakers, and Readers.

German, two courses :

Composition and Conversation ;

German Literature of the Classic Period.

French, two courses :

Grammar, Reading and Translation ;

Literature, Reading, and Composition.

Spanish, one course ;

Grammar, Reading, and Literature.

History and Government, four courses :

Roman History ;
 English History ;
 American History ;
 Civil Government.

Psychology, two courses :

Psychology of the Senses and the Development of Voluntary Motor Ability ;
 Experimental Investigations in the Field of Sensory and Motor Activity.

Education, two courses :

General Principles of Education, Courses of Study, Organization and Administration of School Systems ;
 The History of Education.

Theory of Design, one course :

For Designers, Teachers of Design, and Teachers of the History of Art.

Freehand Drawing, one course :

Theory and Practice.

Music, two courses :

Technical ;
 Historical and Literary.

Mathematics, five courses :

Trigonometry ;
 Analytic Geometry ;
 Advanced Algebra ;
 Solid Geometry ;
 Differential and Integral Calculus.

Astronomy, one course :

Elementary Course for Teachers.

Surveying, three courses :

Plane Surveying ;
 Geodetic Surveying ;
 Railroad Surveying.

Shopwork, four courses :

Chipping, Filing, and Fitting ;
 Blacksmithing ;
 Pattern Making and Foundry Practice ;
 Machine-shop Practice.

Physics, two courses :

- Elementary Experimental Physics ;
- Advanced Course in Experimental Physics.

Chemistry, three courses :

- Elementary Theoretical and Descriptive Chemistry ;
- Advanced Course in General Chemistry ;
- Elementary Organic Chemistry.

Botany, two courses :

- Elementary Morphological and Physiological Botany ;
- Advanced Course in Morphology and Ecology.

Geology, two courses :

- Elementary Geology ;
- Advanced Geological Field-work.

Geography, one course :

- General Course for Teachers.

Physical Training, five courses :

- Theory, two courses ;
- Practice, two courses ;
- Special Course.

In general, the courses in the Summer School are adapted to the needs of teachers and of those who intend to be teachers. A few of the more elementary, however, are intended also to meet the needs of beginners ; and some of them may be taken in lieu of the corresponding courses in Harvard College or the Lawrence Scientific School, and may be counted towards the degree of A.B. or S.B.

It should be clearly understood that in general the courses of study are so planned that the student may most profitably devote all his time to a single course. It is in most cases impracticable successfully to take more than one course ; and students are advised in no case to attempt two courses without consulting the instructors.

Women as well as men are admitted to the courses, except to those in Surveying, Shopwork, and advanced Geological field-work.

CERTIFICATE ON SUMMER COURSE.

A student who pursues and satisfactorily completes the work of any course in the Summer School will be given a certificate.

EVENING LECTURES.

In addition to the courses described herein, a series of evening lectures will be given by members of the Faculty and others. These lectures will be open, without charge, to members of the Summer School. They will be held in the lecture-room of the Fogg Museum of Art, and will begin at 7.30 P.M.

EXCURSIONS TO PLACES OF HISTORIC INTEREST.

A series of excursions, open to all members of the Summer School, will be conducted to places of historic interest about Cambridge, Boston, Lexington, Concord, Plymouth, and Salem. For details, see page 77 of this pamphlet.

TEXT-BOOK LIBRARY.

An arrangement has been made with publishers by means of which students in the Summer School have access to a comprehensive TEXT-BOOK LIBRARY. This will be in charge of an attendant, who will assist students to find the books in which they may be interested. No orders for books will be taken, and no books will be sold. The purpose of this collection is to provide a library in which students may study the comparative merits of the several text-books in a given subject. This library will be found in Room 15, Sever Hall. It will be open daily from 9 A.M. till 12 M.; and, except on Saturday, from 1.30 P.M. till 4 P.M.

THE UNIVERSITY LIBRARY AND THE MUSEUMS.

During the session of the School the University Library will be open every week-day from 9 A.M. till 5.30 P.M. except on Saturday, — open from 9 A.M. till 1 P.M. The Library contains about 400,000 volumes, besides an equal number of pamphlets, charts, etc. The Museum of Comparative Zoölogy, the Peabody Museum, the Semitic Museum, the Fogg Museum of Art, the Botanic Garden, and the Mineralogical Collection, are also accessible to members of the Summer School.

REGISTRATION AND FEE.

Before enrolling in a class a student must register at the office of the Clerk of the Summer School, 16 University Hall, and pay the fee for instruction to the Bursar at Dane Hall.

Students may register on and after July 1.

The fee for any course is stated in the description of the course. No reduction of fee will be allowed for late entrance, nor for withdrawal except on account of illness.

To facilitate the delivery of letters or telegrams, Cambridge addresses should be promptly filed with the Clerk.

TERM OF THE SCHOOL.

The Session of 1901 will open on Friday, July 5, and close on Thursday, August 15; and, unless otherwise stated in the description of the course, the work will continue through this term. The exceptions to this term in the courses in Surveying, Shopwork, and Physical Training, are noted in the descriptions of these courses.

MEETING OF CLASSES.

Unless otherwise announced the first meeting of the classes will be held at 10 A.M., on Friday, July 5. At this meeting the Instructor will arrange the hours for subsequent meetings.

There will be no class-room work on Saturday afternoon; and, unless expressly stated to the contrary, the classes will not meet on Saturday morning.

CLASS-ROOMS.

The rooms in which the several classes are to meet will be announced on the bulletin boards in University Hall and Sever Hall.

A printed list of rooms may be obtained when the student registers, at 16 University Hall.

BOARD AND LODGING.

Board and lodging may be obtained in Cambridge during the summer vacation at a cost varying from \$4.50 to \$10 per week. Students may live most economically by hiring rooms in private houses near the University and dining at the restaurant provided by the Committee in Randall Hall, where meals will be furnished at cost. A list of lodging houses and a map of Cambridge accompany this pamphlet. The Clerk of the Summer School may be consulted about rooms, locations, etc.; and all possible assistance will be given to students in selecting lodgings. No College dormitories are open.

Reception rooms for the use of women who are members of the Summer School are provided in Phillips Brooks House, in the College Yard. A matron, who is also a trained nurse, will be in attendance.

Opportunities for tennis-playing, boating, sea-bathing, and other forms of recreation are convenient at small cost.

Bicycles will be cared for at Sever Hall during lectures.

SUGGESTIONS TO STUDENTS.

Students are advised to plan to arrive in Cambridge on July 2 or 3 so as to secure lodgings, register, and be settled before lectures begin. *It is highly important that all the members of a course should be present at the first lecture, 10 A.M., July 5.*

Students reaching Cambridge late in the afternoon will be assisted at the office of the Summer School in finding lodgings for the night. Those who have not secured rooms in advance, if they arrive in Boston after 7 o'clock P.M. are advised to spend the night there.

Harvard Square, adjacent to the College Yard, is about three miles from the Boston railway stations.

Passengers arriving by rail will find trolley cars for Harvard Square at the stations. Those coming to Boston by trains arriving at South Terminal Station are advised to get off at "Back Bay Station."

Passengers by steamer will find at the wharf trolley cars which connect with cars for Harvard Square.

Baggage may be sent from Boston, care of Sawin's Express Co., Harvard Square, Cambridge, Mass., by arrangement with the Armstrong Transfer Co., whose agent may be found either on the train approaching Boston or at the station on arrival; or it may be left at the railway stations in Boston until lodgings have been engaged in Cambridge. In the latter case checks for baggage may be given to Sawin's Express Co., Harvard Square, after the student reaches Cambridge.

Money to meet expenses should be brought in cash, bank drafts, or certified checks. Private checks are not negotiable.

Further information will be furnished by the Clerk of the Summer School, J. L. LOVE, 16 University Hall, Cambridge, Mass.

COURSES.

GREEK.

GEORGE H. CHASE, PH.D., *Master in Greek at St. Mark's School,
Southborough, Mass.*

Greek for Beginners.

This course is designed for persons who have never studied Greek, and who wish to acquire such a knowledge of the essentials as will enable them to begin with some facility the study of the great classical writers. It may be taken by any teacher or mature student, but an acquaintance with some other inflected language, like Latin or German, will prove advantageous. The needs of students in modern languages, history, and theology will be kept primarily in view; but attention will also be paid to the use of Greek in scientific nomenclature, so that students of the sciences as well will find the course useful. The first four weeks will be devoted to a study of the elements of the language, and to readings and translations by the instructor; during the last two weeks, students will be expected to prepare for recitation assigned lessons from the second book of Xenophon's *Anabasis*. Thoroughness and accuracy will necessarily be required, as affording the only sure basis for profitable reading later; but the instructor will aim to impart the spirit of the Greek classics rather than a technical knowledge of forms and syntax.

The class will meet five times a week, for six weeks.

Text-books. — White's *First Greek Book* (Ginn & Co., \$1.25); Macmillan's *Greek Reader*, by F. H. Colson (The Macmillan Co., \$.75); Goodwin and White's *Anabasis* (Ginn & Co., \$1.40).

The fee for the course is \$20.

Persons desiring additional information may address Dr. GEORGE H. CHASE, Southborough, Mass.

LATIN.

HENRY W. PRESCOTT, A.M., *Instructor in Greek and Latin.*

Course in Latin for Teachers in the Secondary Schools.

The instructor aims in this course to furnish material useful in the teaching of elementary and advanced Latin in the secondary schools, and also to suggest desirable methods of teaching the subject.

The first object will be attained by lectures devoted to the pronunciation of the language, the formation of words, and the syntax of the subjunctive and of the cases; also by recitation-work, based on Cicero's *Manilian Law* and Virgil's *Aeneid*, in which the instructor will pay particular attention to the intelligent reading of the language, especially the quantitative reading of Latin verse; to translation of prepared work, translation at hearing, and translation at sight; to important questions of syntax and style, and to interesting features of ancient life suggested by the subject-matter. Exercises in Latin Composition will form part of the work. Helpful bibliographies will be furnished, both of general works and of special books relating to the authors generally read in schools.

The consideration of methods will include a detailed criticism of beginners' books in use in the secondary schools: in this work the coöperation of members of the course is earnestly invited and desired. Furthermore, the instructor will suggest, in connection with the lectures on syntax and other subjects, desirable methods of presenting this material to students. A brief bibliography of articles in English on the teaching of Latin will serve as the basis of special reports and discussions.

In addition, the instructor will endeavor to promote a better knowledge of Latin literature by readings from Terence, Catullus, Horace, and Martial. Some of this reading will form a regular part of the work of the course; the rest of it will be done at an evening meeting once a week, attendance at which will be optional.

The class will meet five times a week, for six weeks.

Text-books. — Members of the course will find of service all the books that they are in the habit of using in their school-work. Other books necessary will be announced at the opening of the course and can be obtained in Cambridge.

The fee for the course is \$20.

For further information, address Mr. H. W. PRESCOTT, 29 Thayer Hall, Cambridge, Mass.

ENGLISH.

BYRON SATTERLEE HURLBUT, A.M., *Instructor in English.*

WILLIAM HENRY SCHOFIELD, PH.D., *Instructor in English.*

GUSTAVUS HOWARD MAYNADIER, PH.D., *Instructor in English.*

WILLIAM ALLAN NEILSON, PH.D., *Instructor in English.*

PIERRE LA ROSE, A.B., *Instructor in English.*

CHESTER NOYES GREENOUGH, A.B., *Instructor in English.*

The courses in English will begin Friday, July 5, and end Thursday, August 15.

Students may, in many cases, profitably take a course in English literature in connection with a course in English composition.

The fee for each course is \$20.

COMPOSITION.

A. Elementary Course.—The work of this course is similar to the work in rhetoric and English composition prescribed for Freshmen in Harvard College. Its chief objects are to provide instruction in the theory and the practice of English composition and to give teachers a thorough understanding of the methods of teaching English composition employed in Harvard College. The theory of composition is taught by lectures and conferences; the practice is obtained by themes, which are criticised by the instructor and afterwards rewritten or revised in accordance with his suggestions. Professor A. S. Hill's *Principles of Rhetoric* (the revised and enlarged edition) is used as a text-book.

Those who wish to enter this course should be able to use the English language with as much intelligence and as close an approximation to correctness as may fairly be expected of the graduates of a good high school or academy. Persons who are fitting themselves for the course are advised to increase their knowledge of English in every possible way, and particularly to write frequent compositions and to read good books.

Two hours will be spent in the class-room at each session.

In connection with this course students may profitably take one of the courses in literature.

The instruction in this course will be given by MR. B. S. HURLBUT, 5 University Hall, Cambridge, Mass., and assistants.

B. Advanced Course. — This course is intended for those who have already completed the work of the elementary course or its equivalent, or who satisfy the instructor of their fitness to take the course. The work consists of discussions of various matters connected with the art of English composition; of two distinct kinds of practice in writing, (1) daily themes, (2) long themes; and of detailed criticism of these themes before the class.

The object of the daily theme, which is limited to one page of theme paper, is to cultivate observation, and conciseness and ease of expression. The object of the long theme is to cultivate clearness and method in thought, and correctness, ease, and vigor in expression, by practice in three kinds of writing, — Exposition, Description, and Narration.

Two hours will be spent in the class-room at each session of the class. The time will be divided between lectures, accompanied by discussions of themes before the class, and personal conferences.

The text-books used will be Professor A. S. HILL's *Principles of Rhetoric* (the revised and enlarged edition) and Professor BARRETT WENDELL's *English Composition*.

In this course, as in the elementary course, teachers will have an opportunity to study the methods of teaching composition employed in Harvard College.

In connection with this course students may profitably take one of the courses in literature.

The instruction in this course will be given by Dr. G. H. MAYNADIER, 49 Hawthorn St., Cambridge, Mass.

C. Second Advanced Course. — This course is open to those who present a certificate that they have completed *English B, Advanced Course*, of the Summer School, and to others who seem to the instructor fitted to enter a course the especial purpose of which is to give individual instruction to advanced students.

The work of the course will consist of a short theme daily, and of a longer theme twice a week: the former to cover not more than one page of theme-paper; the latter not less than three pages nor more than six. During the first half of the course, the bi-weekly themes will deal with unconnected topics; during the second half, they will develop continuously a single topic. Both the daily and the bi-weekly themes are intended to afford, as far as possible,

the conditions most favorable to the development of individuality in thought and expression.

In connection with this course students may profitably take one of the courses in literature.

The instruction in this course will be given by Mr. P. LA ROSE, 1 Apley Court, Cambridge, Mass.

[*D. Argumentation.* — This course is intended for persons who teach or intend to teach Argument in colleges or high-schools. By lectures and exercises it will trace the history of Argument, will provide practice, under criticism, in its principles, and will discuss methods of handling with classes both oral and written Argument.

This course will not be given in 1901.]

LANGUAGE AND LITERATURE.

Anglo-Saxon.

The course in Anglo-Saxon undertakes to provide a foundation for thorough work in the English language and English literature. Usually, all of Bright's *Anglo-Saxon Reader* (including both poetry and prose) is read in class, but the work of the course is directed chiefly to the prose selections. Careful attention is paid to all questions of grammatical forms and syntax, and students are expected to become thoroughly familiar with the second part of Sievers-Cook's *Old English Grammar*. The selections read are, however, looked at also from a literary point of view, and lectures are given on Anglo-Saxon literature. At the end of the course, members should be able to read ordinary Anglo-Saxon prose readily at sight.

The instruction in this course will be given by DR. W. H. SCHOFIELD, 23 Claverly Hall, Cambridge, Mass.

[*Chaucer.*]

[In this course the greater part of the *Canterbury Tales* will be read with careful attention to grammar and metre. If there is time, the *Parliament of Fowls*, the *Prologue* to the *Legend of Good Women*, and portions of the *Troilus* will also be studied. Informal lectures will be given on Chaucer's life and works, the sources of the Tales, and various matters pertaining to the illustration of the poems. The ground covered will correspond to the first half of the College course, English 1.

The Clarendon Press selections from the *Canterbury Tales* will be used in the class. For the *Minor Poems* and the *Legend of Good Women*, Skeat's editions should be obtained.

This course will not be given in 1901.]

Shakspeare.

In this course the work will be divided into two parts. Three times a week lectures will be given on the plays, which will be treated in relation to their sources, to Shakspeare's development as a dramatist, and to the conditions of the English drama in his time. In the remaining hours, one or two selected plays will be read in class for the purpose of more detailed study of Shakspeare's language and method.

The hours for lectures and conferences in this course will be so arranged that students may profitably take it in addition to one of the courses in composition.

The instruction in this course will be given by Dr. W. A. NEILSON, 4 Quincy Hall, Cambridge, Mass.

English Literature of the Eighteenth Century.

The main purpose of this course is to give students a general acquaintance with the lives and the works of the chief writers of the period treated, and with their position in literary history. A large amount of reading is prescribed, a still larger amount is recommended, and written work is called for. Students are encouraged (1) to form opinions of their own about what they read; and (2) to express their opinions with intelligence, precision, and brevity. The course is intended to furnish a basis for systematic study after students have left the Summer School.

This course may profitably be taken in addition to one of the courses in composition. The hours for lectures and conferences will be so arranged that students may combine work in composition with the study of literature.

The instruction in this course will be given by Mr. B. S. HURLBUT, 5 University Hall, Cambridge, Mass., and an assistant.

English Literature, in Outline, from Anglo-Saxon Times to the Present.

The course is designed to be a comprehensive introduction to a later, more detailed study of English literature as a whole, in any separate period, or in the work of any one author. The lectures, beginning with some consideration of the language and literature of the Anglo-Saxons, will trace thence to the present time the main historical developments of our literature.

This course may profitably be taken in addition to one of the courses in composition. The hour for lectures and conferences will be so arranged that students may combine work in composition with the study of literature.

The instruction in the course will be given by Dr. W. A. NEILSON, 4 Quincy Hall, Cambridge, Mass.

PUBLIC SPEAKING AND READING.

IRVAH LESTER WINTER, A.B., *Instructor in Elocution.*

The aim of this course is to afford practical help to any who use the voice for the expression of their own thought or the thought of literature—to teachers of reading and public speaking, to teachers of English who make oral expression an accessory in their work, and to others practicing the art in professional ways.

At every class exercise practice work is done by each student. Each may choose such work as is suited to the purpose in view, and the main part of the instruction is given by means of specific criticism on that work. For those interested in literature, selections may be made from a variety of classic prose and poetry, including Shakspeare. Speakers and teachers of speaking may give their study to the analysis and delivery of public addresses, or if they so desire, to the preparation and delivery of original productions.

In all this work, insistence is placed first upon that simple and rational mode of expression which is called natural. Observing this, and adhering to other fundamental principles, the student may pursue a method adapted to the class room or to the public

platform, and may develop whatever of individuality appears to be an element of strength.

The class exercises are held five times a week, from 10 to 12 o'clock, in the Fogg Lecture Room.

The course will begin on Friday, July 5, and end on Thursday, August 15.

The fee for the course is \$20.

For more detailed information concerning this course address Mr. I. L. WINTER, 35 Fairfax Hall, Cambridge, Mass.

GERMAN.

W. G. HOWARD, A.M., *Instructor in German.*

J. F. COAR, PH.D., *Instructor in German.*

Two courses will be given, one in Composition and Conversation and one in German Literature of the Classic Period. No elementary course (for beginners) will be given. Both of the courses offered will be especially adapted to the needs of teachers, and neither may be counted towards the degree of A.B. or S.B.

In both courses some time will be devoted to methods of teaching German, and to kindred subjects that may be suggested by members of the class. The instructors will appoint special conferences with those who may wish to consult them further.

These courses will begin on Friday, July 5, and end on Thursday, August 15.

The fee for each course is \$20.

COMPOSITION AND CONVERSATION.

The work in this course will consist of—

a. Daily exercises in composition (translations from English into German, alternating with themes on simple subjects).

b. A systematic training in German pronunciation, with practice in reading aloud.

c. Daily practice in German conversation, in connection with the reading of selected works of contemporary German authors.

A considerable amount of easy, well-graded and connected narrative prose will be translated into German. Special attention will

be given to grammar, and to the nicer distinctions in the meanings of words. Lessons in composition will be prepared outside, but there will also be daily practice in translating at sight in the class room.

The writing of frequent, simple themes will give the student an opportunity to make use of his own vocabulary and to learn to express his ideas in correct and idiomatic German.

This class will meet five times a week.

Further information concerning this course will be given by Dr. J. F. COAR, 65 Langdon St., Cambridge, Mass.

GERMAN LITERATURE OF THE CLASSIC PERIOD.

The class work in this course will consist of a critical study of such masterpieces of eighteenth century literature as Lessing's *Nathan der Weise*, Schiller's *Wallenstein*, and Goethe's *Faust*. There will also be lectures on the development of German literature during the classic period, and discussions on the relation of Lessing, Schiller, and Goethe to the intellectual movements of the eighteenth century. Collateral reading will be chosen from the novel and drama of the period and from modern critical and historical treatises dealing with these subjects.

The class will meet five times a week.

Further information concerning this course will be given by Mr. W. G. HOWARD, 5 Grays Hall, Cambridge, Mass.

[MIDDLE HIGH GERMAN.]

[This course alternates with the preceding one; it will not be given in 1901.]

The work in this course consists of —

- a. A brief study of Middle High German grammar.
- b. The reading, in the original, and translating into modern German, of representative works of mediaeval German literature.
- c. Daily lectures, on the development of German literature from the eleventh to the fourteenth century.]

FRENCH.

P. B. MARCOU, PH.D., *Assistant Professor of Romance Languages.*

C. H. C. WRIGHT, A.M., *Instructor in French.*

Two courses will be given, the one introductory, intended for persons who have not been well grounded in the language; the other advanced, intended for those who have a fair knowledge of the language and desire to study advanced reading, composition, and literature.

These courses do not count towards the degree of A.B. or S.B.

The fee for each course is \$20.

They will begin on Friday, July 5, and end on Thursday, August 15.

INTRODUCTORY COURSE.

GRAMMAR, READING, AND TRANSLATION.

A knowledge of elementary grammar being absolutely requisite to obtain accuracy in reading and translation, a careful study will be made of the regular and the more frequent irregular verbs; of the forms and positions of personal pronouns; of the use of other pronouns and of possessive, demonstrative, and interrogative adjectives; of the inflections of nouns and adjectives for gender and number, except rare cases; and of the use of articles and partitive constructions.

The work in composition will include the translation of sentences and short passages of English into French, and the preparation of brief summaries, in French, of books read in class and outside. The work will be regularly corrected by the instructor.

French will be spoken as far as practicable, and students will be encouraged to use that language, with a view to acquiring a good pronunciation.

The reading will include both prepared and sight reading. Several authors will be read, and much of the French will be carefully translated.

The following books will be used: Grandgent's *Essentials of French Grammar* (Heath & Co.); Laboulaye, *Contes bleus* (Heath & Co.); Lesage, *Gil Blas* (Heath & Co.); George Sand, *la Mare*

au Diable (Heath & Co.); Anatole France, *le Crime de Sylvestre Bonnard* (Holt & Co.).

Further information concerning this course will be given by Mr. C. H. C. WRIGHT, 7 Buckingham St., Cambridge, Mass.

The class will meet five times a week.

ADVANCED COURSE.

LITERATURE, READING, AND COMPOSITION.

This course will consist of a study of French literature, combined with practice in pronouncing and writing French and in understanding the spoken language.

The exercises will be conducted in French. Students will be taken through Lanson's *Histoire de la littérature française*, and will be expected to write each day a critical summary of the lesson, which, as far as possible, will be read and discussed in class. Each student will also be expected to write in French at least one thorough critical study of a French author, which will be read and discussed in class.

Lectures, taking up special points in literature, not covered by Lanson, will be given by the instructor.

Further information concerning this course will be given by Professor P. B. MARCOU, 42 Garden St., Cambridge, Mass.

The class will meet five times a week.

SPANISH.

J. D. M. FORD, PH.D., *Instructor in French.*

This is an introductory course, intended to meet the needs of beginners, but it may also be taken with profit by those who have already some knowledge of the elements of the language. The work will consist of a systematic drill in Spanish grammar with exercises in composition, and of a considerable amount of translation from representative modern novelists and dramatists. The reading done will comprise both prepared and sight work.

While a knowledge of several languages is in no wise a prerequisite to the course, an effort will be made to apply the student's acquaintance with Latin, French, or Italian to the attainment of a readier power of translation from Spanish into English.

The chief books to be used are: M. M. Ramsey, *A Text-Book of Modern Spanish*; Ford's *Exercises in Spanish Composition* (Heath & Co.); P. A. de Alarcón, *El Capitán Veneno* (Heath & Co.); Pérez Galdós, *Doña Perfecta* (Ginn & Co.); L. F. de Moratín, *El sí de las niñas* (Ginn & Co.); De Haan's *Cuentos modernos* (Heath & Co.).

This course does not count towards the degree of A.B. or S.B.

It will begin on Friday, July 5, and close on Thursday, August 15.

The class will meet five times a week.

The fee for this course is \$20.

For further information apply to Dr. J. D. M. FORD, 7 Thayer Hall, Cambridge, Mass.

HISTORY AND GOVERNMENT.

ABBOTT LAWRENCE LOWELL, A.B., LL.B., *Professor of the Science of Government.*

ALBERT BUSHNELL HART, PH.D., *Professor of History.*

GEORGE WILLIS BOTSFORD, PH.D., *Instructor in the History of Greece and Rome.*

ARTHUR LYON CROSS, PH.D., *Instructor in History at the University of Michigan.*

JOSEPH PARKER WARREN, A.M., *Assistant in Government.*

GENERAL STATEMENT.

Four courses will be given in this group of subjects. Each will begin on Friday, July 5, and end on Thursday, August 15. These courses are designed for teachers or well-trained students, and will devote special attention to methods of presentation and to useful class exercises; some previous knowledge of the matters treated is presupposed.

Attention is called to the opportunities to visit under competent direction the historical sites and buildings in Eastern Massachusetts, described on pages 77-79.

The fee for any one course is \$25, but students who have paid this fee may attend the lectures in the others without additional payment. It will not be possible to do the entire work and take the examination in more than one course.

I. GREEK HISTORY.

This course will be given by Dr. BOTSFORD. It assumes such a previous acquaintance with the subject as may be obtained from Botsford's or Oman's History of Greece. It aims to indicate the large movements in the life of the race, the relative importance of events, and at the same time the best methods of using the secondary authorities and the sources. The instructor believes that the chief interest in Greek history does not lie in military operations or even in the organization and politics of the cities; but rather in the development of civilized life, to which war, politics, art, religion, and science made their respective contributions.

LECTURES.

The lectures will be distributed as evenly as possible over the following periods, and will be completed at the end of the fifth week.

1. The beginnings of the Greeks. Prehistoric Greece (to 700 B.C.).
2. The awakening of the Greek mind and the growth of national unity (700-479 B.C.).
3. The most vigorous intellectual and political activity of the Greeks (479-404 B.C.).
4. The intellectual ripening and the political decline of Greece (404-323 B.C.).

WRITTEN WORK.

The work of the students will consist of notes on the lectures, reading in secondary books, and written work in which the student will have an opportunity to make a practical application of critical methods under the guidance of the instructor. The various forms of pupils' written work suggested by the New York Conference in History and by the new Harvard requirements will thus have a practical illustration. Students will not be required to read Greek texts in the original. The last week of the course will be devoted entirely to methods of investigation and to written work.

READING.

Students will have access to the reserved books on Greek History in the Harvard University Library. The following secondary works

will be found especially useful: Holm, *History of Greece*, 4 vols.; Curtius, *History of Greece*, 5 vols.; Abbott, *History of Greece*, 3 vols.; Bury, *History of Greece*; Gilbert, *Greek Constitutional Antiquities*; Mahaffy, *Survey of Greek Civilization*; Jebb, *Primer of Greek Literature*; Murray, *Ancient Greek Literature*; Marshall, *Short History of Greek Philosophy*; Tarbell, *History of Greek Art*.

SOURCES.

Students will also have the use of selected sources for their written work, and for illustrating and vitalizing their study. The following are the most useful texts: *Herodotus* (Rawlinson's or Macaulay's translation); *Thucydides* (Jowett's translation); *Xenophon* (Dakyn's translation); *Pausanias* (Shilleto's translation); *Plutarch's Lives* (Clough's translation); *Demosthenes* (Kennedy's translation); *Plato* (Jowett's translation); *Aristotle's Politics* (Jowett's translation); *Homer's Iliad* (Lang, Leaf and Myers' translation); *Homer's Odyssey* (Butcher and Lang's translation); *Pindar's Odes* (Myers' translation); *Aeschylus* (Paley's or Plumptre's translation); *Sophocles* (E. P. Coleridge's or Plumptre's translation); *Euripides* (Coleridge's translation); *Aristophanes* (Frere's translation).

EXAMINATION.

At the end of the course there will be a written examination. Students who satisfy this requirement and also that in written work will receive a certificate.

For further information concerning this course apply to Dr. G. W. BOTSFORD, 31 Sacramento St., Cambridge, Mass.

II. ENGLISH HISTORY.

This course will be given by Dr. CROSS. It will consist of twenty-eight lectures supplemented by parallel readings and written exercises. The lectures will not follow a strictly chronological arrangement but will be arranged topically as far as possible.

BRIEF OUTLINE OF LECTURES.

1. Sources, literature, and other helps to the study of English History.
2. Physical characteristics of the British Isles.

3. Important periods and the main features characteristic of each.
4. Race elements of the English nation.
5. The settlements and the Union of the Kingdoms.
6. Characteristics of Anglo-Saxon Britain.
7. The Conquest and the Anglo-Norman Kings.
8. The up-building of English Law and the organization of the organs of central government.
9. Reaction against absolutism and the rise of Parliament.
10. Edward I and the beginnings of legislation.
11. Edward III and the Hundred Years War.
12. The Beginnings of religious and social revolution and the rise of the Commons.
13. First Experiments in Constitutional Monarchy.
14. The Wars of the Roses and the beginnings of the new absolutism.
15. The Reformation.
16. Character and work of the later Tudors.
17. Elizabethan England.
18. The accession of the Stuarts and the beginnings of the Puritan Revolution.
19. Charles I and the precipitation of the quarrel between king and people.
20. The Civil War and the overthrow of the monarchy.
21. The Commonwealth and the Protectorate.
22. The Restoration Era.
23. The Revolution of 1688-89.
24. Beginnings of the cabinet system and rise of parties and party government.
25. Expansion of England.
26. Modern English colonial policy.
27. Parliamentary Reform.
28. Industrial and social progress in the Nineteenth Century.

READING.

Students will be expected to read one of the two following manuals: Coman and Kendall, *History of England*; J. W. Larned, *History of England*. In addition, as a supplement to the lectures and text book, collateral reading will be assigned at stated intervals, selected

from the standard general histories, from monographs dealing with special periods and aspects of the subject, and from the more accessible sources.

" PAPERS."

Written exercises, on the plan described under this head in the account of the course in American History (v. p. 28), will be held at the close of each lecture.

ESSAYS.

Two pieces of written work, on topics assigned by the instructor, will be prepared under his direction during the session. The last week of the course will be specially devoted to this work.

EXAMINATION.

At the end of the course there will be a written examination. Students who pass this examination and complete the written work in a satisfactory manner will receive a certificate.

For further information concerning this course apply to Dr. A. L. Cross, University of Michigan, Ann Arbor, Mich.

III. AMERICAN HISTORY.

This course will consist of twenty-five lectures, supplemented by parallel readings, of a daily written exercise, and of a series of four pieces of written work prepared in the library. Professor HART will give ten of the lectures and direct the whole work of the course. The other lectures will be given by Dr. CROSS.

The references in the list below are to Channing and Hart, *Guide to the Study of American History* (Boston, 1897); Albert Bushnell Hart, *Source-Book of American History* (N. Y., 1899); Albert Bushnell Hart, *American History told by Contemporaries* (4 vols., N. Y., 1897-1901); Committee of Seven, *The Study of History in Schools* (N. Y., 1899).

LIST OF LECTURES.

1. Text-books, secondary works and school courses: *Guide* §§ 18-20a; *History in Schools*; *Source-Book*, Introduction.
2. How to find and use materials: *Guide*, §§ 15-36; *Contemporaries*, Introduction to each volume.

3. Physical and political geography of North America to 1789 (with special maps): *Guide*, §§ 21, 48, 77, 78, 144.
4. Elements of European Colonization: *Guide*, §§ 79–96; *Source-Book*, §§ 1–12; *Contemporaries*, I, Parts II, III.
5. Characteristics of the Southern Colonies: *Guide*, §§ 97–103; *Source-Book*, §§ 13, 18, 24, 27, 34, 35; *Contemporaries*, I, Part IV, II, Chs. v, vi.
6. Characteristics of the New England Colonies: *Guide*, §§ 109–130; *Source-Book*, §§ 14–17, 19–21, 28–31, 130; *Contemporaries*, I, Part V, II, Ch. iii.
7. Characteristics of the Middle Colonies: *Guide*, §§ 104–108; *Source-Book*, §§ 16, 25, 26, 32; *Contemporaries*, I, Part VI, Ch. iv.
8. Colonial experience of popular institutions (1607–1775): *Guide*, §§ 47, 112, 118, 124, 127, 147–148; *Source-Book*, §§ 48–52; *Contemporaries*, II, Part III.
9. Causes of the Revolution: *Guide*, §§ 133–136; *Source-Book*, §§ 53–56; *Contemporaries*, II, Part VI.
10. Characteristics of the Revolution: *Guide*, §§ 137–141; *Source-Book*, 57–63; *Contemporaries*, II, Parts VII, VIII.
11. History of the Continental Congress and Confederation (1775–1788): *Guide*, §§ 142, 143, 149–153; *Source-Book*, §§ 64, 65; *Contemporaries*, II, Ch. xxx, III, Ch. 7.
12. Adoption of the Constitution: *Guide*, §§ 154–156; *Source-Book*, §§ 68–76; *Contemporaries*, III, Ch. 7.
13. Statesmen of the formative period: *Guide*, §§ 157, 159, 160, 167; *Source-Book*, §§ 71, 73, 77, 89; *Contemporaries*, III.
14. Territorial development (1789–1900): *Guide*, §§ 167, 168, 185, 193; *Source-Book*, §§ 66, 67, 78, 80, 88–93, 102–106; *Contemporaries*, III.
15. Foreign complications (1793–1815): *Guide*, §§ 162, 164, 170, 171; *Source-Book*, §§ 74–76, 79, 81, 32–87; *Contemporaries*, III.
16. Financial problems (1816–1861): *Guide*, §§ 151, 158, 174, 182–185, 195; *Source-Book*, §§ 72, 73; *Contemporaries*, III.
17. Period of the great triumvirate — Webster, Clay, and Calhoun (1816–1850): *Guide*, §§ 176, 183, 197; *Source-Book*, §§ 91–106; *Contemporaries*, III.

18. The slavery question (1789-1835): *Guide*, §§ 148, 152, 161, 177, 186, 188, 198, *Source-Book*, §§ 98-100; *Contemporaries*, III.
19. Anti-slavery movement: *Guide*, §§ 187, 189-191; *Source-Book*, §§ 94-101; *Contemporaries*, III.
20. The sectional problem (1844-1858): *Guide*, §§ 173, 185, 193, 196; *Source-Book*, §§ 107-111; *Contemporaries*, IV, Parts II, III.
21. Could the Civil War have been avoided? (1860-1861): *Guide*, §§ 156, 199-208; *Source-Book*, §§ 112-115; *Contemporaries*, IV, Part IV.
22. Characteristics of the Civil War (1861-1865): *Guide*, §§ 209-213; *Source-Book*, §§ 116-126; *Contemporaries*, IV, Part V.
23. Characteristics of the Reconstruction period (1864-1873): Hart, *Revised Suggestions*, § 69; *Source-Book*, §§ 127-132; *Contemporaries*, IV, Part VII.
24. Governmental problems of the nation (1873-1900); *Source-Book*, §§ 133-139; *Contemporaries*, IV, Ch. xxxiii.
25. Foreign and Colonial policy (1865-1900); *Source-Book*, §§ 140-145; *Contemporaries*, IV, Chs. xxxi, xxxii.

READING.

The main text-books of the course will be, — Edward Channing, *Students' History of the United States*; *Epochs of American History*, 3 vols. Lists of books and classified readings parallel with the course will be found in Channing and Hart, *Guide to the Study of American History*, §§ 56a, 56b. Students will find a selected body of sources in the specific references above, and also in *Old South Leaflets*; MacDonald, *Select Charters and Select Documents*; Hart and Channing, *American History Leaflets*. It is expected that the reading, including the preparation for "papers," will occupy most of the time devoted to the course during the first four weeks.

"PAPERS."

There will be a daily exercise intended to train students in the power of statement and the application of general principles to unforeseen cases. This exercise will consist of a written answer to

a question connected with the subject of the previous day's lecture, but stated in a form which will require some knowledge of principles, and a quick use of reasoning powers. Twenty minutes will be allowed for each paper at the end of the daily lecture; and the papers will be returned with written criticisms and suggestions made by the assistant. The work of preparation for the papers, described in detail in Hart, *Revised Suggestions*, §§ 35-40, will be included in the parallel reading for the course.

SPECIAL REPORTS.

During the whole course, and especially during the week from August 9 to August 15, there will be practical training in the use of materials and the application of the laboratory method of historical study. Four pieces of written work, based so far as practicable upon original sources, will be prepared under the direction of Prof. HART and Dr. CROSS. Each student will have a special, individual subject assigned under each of the following general topics: —

1. A bibliography of a public man, and summary of his public services.
2. An episode in Colonial social life.
3. An episode in the slavery contest.
4. The history of an Act of Congress.

The method is described and lists of subjects are given in the *Revised Suggestions*, §§ 71-94. For the purposes of these investigations the College sets of colonial records, United States documents, travels, autobiographies, collected writings, and other sources, will be at the service of students of the Summer course.

EXAMINATION.

At the end of the course there will be a written examination covering the general ground. Students who pass this test and also complete satisfactorily the written work, will receive a certificate.

Further information concerning this course may be obtained from Professor ALBERT BUSHNELL HART, 15 Appian Way, Cambridge, Mass.

IV. CIVIL GOVERNMENT.

The aim of this course is to study the chief existing political systems — more especially of the United States, England, and Switzerland, although comparisons with France and other countries will be constantly made. Attention will be given to differences in methods of choosing public servants, in the relations between the several departments of government, in the forms and processes of legislative action, etc.

LECTURES.

The course will consist of thirty lectures, five of which will be given by Professor LOWELL, the others by Mr. WARREN. The following list of topics is intended to indicate the scope of the course.

1. INTRODUCTORY.

Method of instruction and reading in the course.

Different modes of studying government: advantages of the inductive method; its difficulties.

The three forms of modern popular government; the parliamentary; the presidential; the collegiate. The leading characteristics of these. The normal development of each of them in its home. Attempts to copy the first two elsewhere.

Federal government: conditions of its existence; its advantages and disadvantages.

Constitutions: written and unwritten; different meanings of the word unconstitutional in different countries; power of the courts in the matter.

Methods of adopting and amending constitutions.

2. ENGLAND.

The Sovereign: prerogatives and influence distinguished; the Crown in legislation and administration.

Cabinet; Ministry; Privy Council.

House of Lords: composition; functions; relative importance.

House of Commons: distribution of seats; disputed elections; the Speaker; order of business; cloture; questions; committees; responsibility of the Ministers; power of dissolution.

Private Bill Legislation.

English Parties : the English government the most distinctly party government ; selection and nomination of candidates ; party organizations and their functions.

3. THE UNITED STATES.

A good general knowledge of our own Constitution will be assumed ; attention will be directed to the less obvious features of it, to the changes developed by a century of political life under it, and especially to such devices and practices as are of American growth. Among the topics noticed will be : —

Constitutional Conventions.

Constitutions as "supreme law."

Checks and balances.

The Presidency : amendment xii ; methods of nomination ; electoral count ; Presidential succession ; the Cabinet ; consequences of the independence of the Executive.

The Senate : causes of its preponderance ; proposed changes in election of Senators.

The House of Representatives : the Speaker ; the Standing Committees ; procedure.

Federal and State judicial systems.

Division of the powers between the Union and the States ; comparison with other federal governments.

Organization and action of our parties.

The Spoils System and progress in reform.

Territories and Colonies. Discussions of their constitutional status.

4. SWITZERLAND.

The organs of the Federal government.

The Federal Council.

The National Council.

The Council of States.

The Federal Tribunal.

The relations of the Executive and the Legislature.

The division of powers between the Confederation and the Cantons.
Growth of the Federal power.

The Referendum and the Initiative.

Proportional Representation.

5. THE BRITISH COLONIES.

The self-governing colonies.

The Crown colonies.

The Crown colonies with an elective assembly.

India: the system of government; the Indian Civil Service; the provinces under direct British rule; the Native States.

The Federated Malay States.

The government of Egypt.

READING AND REPORTS.

Each student will be expected to carry on a systematic course of reading in conjunction with the lectures, and to prepare three short written studies of assigned topics.

The following books are recommended as manuals: Hinsdale, *The American Government*; Traill, *Central Government*; Lowell, *Governments and Parties in Continental Europe*; Deploige, *The Referendum in Switzerland* (Eng. trans.); Bryce, *American Commonwealth*; Anson, *Law and Custom of the Constitution*; and Egerton, *Short History of British Colonial Policy*. These will be extensively used. These works and other books needed for reference are to be found in the University library.

EXAMINATION.

At the close of the course there will be a written examination covering the lectures and the reading. Students who pass the examination and complete the written work satisfactorily will receive a certificate.

Professor A. L. LOWELL, 171 Marlborough St., Boston, Mass., may be consulted by persons who desire further information about this course.

PSYCHOLOGY.

ROBERT MACDOUGALL, PH.D., *Instructor in Psychology*.

The courses in Psychology will be given in the Psychological Laboratory, Dane Hall, Cambridge, beginning July 5th, and ending Aug. 15. The work of the session will consist of two parts,—a Lecture Course of one hour daily from 9 to 10; and a Laboratory Course devoted to demonstration and experimental work of one hour daily from 10 to 11. No work will be required on Saturdays.

Either course may be taken alone. The Laboratory Course, though not co-ordinated with the Lecture course, is closely related to it, and every student who can do so is recommended to take the work of both. The fee for the two courses together will be \$25; for Course I alone, \$15, for Course II alone, \$15.

I. *The Psychology of the Senses and the Development of Voluntary Motor Ability.*

1. Introductory. The first course will begin with a brief study of the nervous system as a mechanism of sensation and reaction. Outline of structure; organs of the special senses; sensory and motor functions; rhythm of nutrition, nervous fatigue, periodicity in growth; the functions of the brain; development of the central nervous system in its relation to the succession of mental and physical activities of the individual; the elementary laws of neural action:—the diffusion of the nervous wave; the threshold of sensation; inertia and the summation of stimuli; the relativity of sensation; reinforcement and inhibition of the nervous discharge; dissociation of nervous functions.

2. Psychology of perception and the education of the senses. The nature of sensation,—as a psychological element and as a simple fact of experience. The elements of sense-perception; the special senses, sight, hearing, touch, taste, smell; organic sensations. The elementary nervous laws in the phenomena of sensation. Perception by the senses: objects and space-relations. Associative factors in perception and the growth of apperceptive systems. The function and development of attention. The relation of voluntary motor activity to the development of sense perception. Educational method in the training of the senses.

3. The Development of Voluntary Motor Ability. Primitive movements. The sensori-motor arc. Factors and development of voluntary movement. Growth in variety, precision, and complexity. Imitation and the social environment. The formation of habit; routine and acquisition in human development. Complicated voluntary activity. Co-ordination and inhibition of impulses. The growth of personal and social ideals. Character as the organized will. Higher and lower ends of action. Character and law: the moral will.

II. *Experimental Investigations in the Field of Sensory and Motor Activity.*

This course is designed, in the first place, to form an introduction to experimental methods and to the use of laboratory material. At the same time it will endeavor to make the student acquainted with the better established results of modern psychological investigation in the general field covered by the lectures of Course I. Opportunity will be presented for the study of the anatomy of the brain and sense-organs by means of preserved specimens, microscopic preparations, models, and charts.

The systematic work of the course will consist of class demonstrations and experimental study, by each student, of the phenomena of sensation, sense-perception, and the simpler forms and conditions of motor activity. The scope of the experiments is indicated by the following selected topics: —

Analysis of sensory elements. The law of the threshold in sensation. Fatigue and practice effects. Reinforcement and inhibition of sensations by each other and by movements. The perception of objects, — by sight, by hearing, by touch; and of space, — visual, auditory, tactual. Reaction: sensory and motor types. Reaction times, simple and complex. Variations of type, in disease and other abnormal conditions (fatigue, distraction), and their educational bearing. Representative types — visiles, audiles, motiles. Motor elements in perception: active and passive touch, the function of eye-movements, ideo-motor action. The development of motor control.

Each student will be expected to keep a systematic record of experiments performed from day to day, with charts, curves, and tabulation of averages worked out, together with an exact introspective account of his experience in all cases where he has acted as subject in the experiment. References to literature will be available for those who wish to carry their reading or investigations farther.

The Laboratory is furnished with apparatus both for demonstration and for research. The reference library of 400 volumes, placed in one of the laboratory rooms, is open for consultation. It is well catalogued and supplied with all the leading psychological periodicals. Frequent reference to its books and magazines will be made in the course of the lectures.

No text-book is required in either course, but for the first the student is referred to James's *Psychology*, Sully's *Human Mind*, or Stout's *Manual*; and in the second to Sanford's *Experimental Psychology*, and Ladd's *Elements of Physiological Psychology*, for collateral reading.

Further information concerning these courses may be obtained by addressing Dr. ROBERT MACDOUGALL, 308 Harvard St., Cambridge, Mass.

EDUCATION.

PAUL H. HANUS, S.B., *Assistant Professor of the Theory and Practice of Education.*

ARTHUR O. NORTON, A.M., *Instructor in the History of Education.*

The general aim of the courses in Education is to afford teachers, principals, and superintendents an opportunity to study their profession historically and critically. Two courses are offered, as follows:—

I. General Principles of Education, Courses of Study, and the Organization and Administration of Schools and School Systems. Twenty-five lectures, by Asst. Professor PAUL H. HANUS.

The special aims of this course are, first, to make a critical examination of such principles of education as may serve to guide the student in his further study of educational questions; second, to make a critical examination of typical courses of study; and third, to discuss the powers and duties of principals and superintendents of schools, together with some principles of the organization and administration of schools and school systems. The following topics indicate the nature of the work proposed. Two or more lectures may be devoted to any one of the topics named:—

The fortuitous education of natural environment and of social experience. The scope and meaning of specific education.

The special aims of elementary and of secondary education and their relation to each other.

Educational values and courses of study.

Comparison and criticism of existing and suggested courses of study.

The relation of psychology and ethics to educational theory and practice.

General principles of method.

The correlation of studies.

The study of children.

The bearing of instruction on character.

Discipline and moral training.

Education as a function of society.

The school committee.

The Superintendent's relation to the school committee and to the community.

The Superintendent's relation to the teaching force and to the community.

The duties of Principals.

Some of the essential conditions on which effective supervision depends.

A considerable amount of written work, in addition to prescribed reading, is expected of all students who are candidates for the Summer School certificate. All students will have an opportunity, under the general direction of the instructor, to prepare written theses and discuss topics in which they are especially interested; and advanced students may be invited to present their theses for discussion at conferences to be proposed for occasional afternoons.

II. The History of Education since the Twelfth Century. Twenty-five lectures, by Mr. ARTHUR O. NORTON.

The lectures for 1901 will deal chiefly with education since the twelfth century in Italy, France, Germany, and England; and since 1635 in America. For clearer understanding of the rediscovery of ancient educational theories, practices, and materials, in the Renaissance, the first three or four lectures will be devoted to some aspects of Greek, Roman, and Early Christian education. The aim throughout will be to trace, on the one hand, the historical development of modern theories and practices; and, on the other, the relation of this development to the general history of civilization. The course, therefore, treats many topics of interest to general students; but emphasis is laid upon the more strictly professional aspects of the subject.

In addition to the lectures, the work will include extensive reading and frequent written reports on prescribed subjects. Oral discussions may be held from time to time.

The following topics indicate the general character of the work : —

Greek contributions to education ; literature, experience, institutions theories.

Roman education as influenced by Greek ideals.

Christian schools in the Roman Empire. Monastery and cathedral schools. The revival of education under Charles the Great.

Elementary education from Alcuin to Vittorino da Feltre.

Abelard. The rise and development of universities.

The Renaissance and its influence on education. Humanism and the the Humanists.

English Schools before the Reformation.

The Reformation. Its effect upon European education.

The Counter-Reformation. The educational system of the Jesuits.

The schools of Port Royal.

The rise of Realism and Utilitarianism as opposed to Humanism and Culture.

Comenius and the development of elementary text-books.

Early writers on education in England. Ascham, Mulcaster, John Locke.

Rousseau's influence upon educational theory and practice.

Pestalozzi. Education for the People.

Fröbel and the Kindergarten.

Psychology in educational theory. Herbart.

English schools since the Reformation.

Education in the United States. Horace Mann.

The GENERAL LIBRARY of the University will be in constant use, and in the READING-ROOM will be found a group of books on Education arranged for the convenience of students.

The attention of members of these courses is called to the TEXT-BOOK EXHIBIT in Room 15, Sever Hall. This exhibit contains more than three thousand modern text-books and reference books issued by leading publishers, and is in charge of an attendant employed by the University. It is open daily from 9 till 12, and, except on Saturdays, from 1.30 till 4.

The meetings of the courses in Education will be held on every week-day except Saturday. Course I will meet at 11 A.M., and Course II at 9 A.M. The fee for either course alone is \$20; and for both courses together, \$30. For further particulars address Professor PAUL H. HANUS, 15 Phillips Place, Cambridge, Mass.

THEORY OF DESIGN.

DENMAN WALDO ROSS, PH.D., *Lecturer on the Theory of Design.*

} *Assistants.*

LECTURES WITH EXPERIMENTAL PRACTICE.

The spot of paint as a term of expression. Its tone, its measure, its shape. Thinking in tones, measures, and shapes. Expression of the thought by painting.

Pure Design: the composition of tones, measures, and shapes, for the sake of Rhythm, Balance, Harmony, the principles of Order, of Beauty. Definition and explanation of these principles. Exercises in designing; designing in values (different measures of light in the black-to-white scale) and in color-values, or tones. Different systems of color-values. Tone-rhythms, tone-balances, harmony of tones. Pure Design compared with Music. Appeal of Music to the ear, of Pure Design to the eye. The undeveloped possibilities of Pure Design.

Design in Representation. The object as represented by the visual image. Advancement of knowledge (science) by the definition of the visual image, as hypothesis, and by the comparison of the definition with the object (the facts of observation). The advancement of knowledge not, necessarily, an advancement of Art. Artistic representation; knowledge in forms of design. Importance of design in connection with Representation. Practice in Representation, following the principles of *Désign*.

The history and development of the Fine Arts: Gymnastics (including dancing), Music, Poetry, Architecture, and Sculpture; Painting particularly described, in its developments, its history. Painting in the East (China and Japan) and in Western Europe. Different modes of Pure Design and of Design as applied in Representation. Study of examples and illustrations.

First object of the course: to induce an activity of imagination (the habit of thinking in tones, measures, and shapes). Second object: to get this activity of imagination under the control of the

principles of design (Rhythm, Balance, Harmony). Art defined as design in forms of expression.

Students taking this course will be divided into two classes; one class studying Pure Design; the other Design in Representation.

Freehand Drawing. The work in the second of these two classes may be made to serve the purpose of those who wish to follow a course in the theory and practice of freehand drawing (without painting), as a preparation for teaching, or for the admission examination of the Lawrence Scientific School.

The Course is intended for designers, for teachers of Design, and for teachers of the History of Art. The instructors will meet the class daily, except Saturdays. The meetings will be held in the Architectural Building; the first meeting on Friday, July 5, at 10 A.M. (subsequent meetings at 9 A.M.), and the last meeting on Thursday, Aug. 15. Fee \$20.

For further information about the course, apply to Dr. D. W. Ross, 24 Craigie Street, Cambridge, Mass.

For information about lodgings and board apply to Mr. J. L. Love, Clerk of the Summer School, 16 University Hall, Cambridge, Mass.

MUSIC.

WALTER RAYMOND SPALDING, A.M., *Instructor in Music.*

Two courses in Music will be given in 1901; beginning Friday, July 5, and ending Thursday, August 15.

The fee for the two courses together is \$30, or for one of the courses alone \$20.

Course I will meet daily, except Saturday, at 9 A.M., and Course II at 11 A.M.

No special technical training in vocal music is to be given in these two courses, but they will be carefully designed with reference to the needs of teachers of music in the secondary schools. The principles indispensable to a sound knowledge of music will be analyzed, and the the most effective modern methods of presenting these principles will be thoroughly discussed.

I. The work in this course is similar to the work done in Music 1 in Harvard College, and the course is designed for persons who wish

to acquire a thorough knowledge of the grammar of music and of the main laws of musical construction. The principles are taught and explained by lectures and conferences. Facility in applying them is obtained by means of exercises written, by the student, to given melodies in soprano and bass. These exercises are criticised by the instructor and afterwards revised or rewritten in accordance with his suggestions. A large part of the time is spent in analyzing the works of classical composers and in tracing the principles according to which they worked. The object is to learn music as far as possible at first hand from music itself and not from any text-books, however good.

It is understood that all who take the course shall be familiar with the rudiments of musical notation and scale formation, and shall have a fair degree of facility in playing either the pianoforte, the organ or possibly the violin.

II. This is a more general course than I, and would not presuppose so much special aptitude for music on the part of the student. It is designed for those who may not wish to undertake the technical study of music, but who would like to extend their knowledge of the historical development of the art, of the lives of the great composers, and of the aesthetic principles of music—in other words, for those who may wish to know more of the art of music in general and to increase their powers of appreciation.

In connection with these two courses a choral class may be formed, in case there are a sufficient number of voices for the separate parts.

For further information address Mr. W. R. SPALDING, Berkeley Place, Cambridge, Mass.

MATHEMATICS.

JAMES LEE LOVE, A.M., *Instructor in Mathematics.*

CHARLES H. ASHTON, A.M., *Instructor in Mathematics.*

HARRISON H. BROWN, PH.D., *Instructor in Mathematics.*

Five courses in Mathematics are offered, embracing *Advanced Algebra*, *Solid Geometry*, *Plane Trigonometry*, *Plane Analytic Geometry*, and an introductory course in *Differential and Integral Calculus*. These courses are described below. Work will begin in each course on Friday, July 5, and end Thursday, August 15.

Class-room exercises, consisting of lectures and recitations, and occupying an hour and a half to two hours each, will be held five times a week.

Text-books, when not named, will be announced at the first meeting of the course; and, if necessary, may be purchased at once from Cambridge book-sellers. The student is advised to bring with him any text-books he may possess covering the subject he proposes to study.

It is expected that the student will take one course only, devoting his time wholly to a single subject. The cases are exceptional when more than one course can be taken profitably, unless one at least of the courses is a review.

No special attention is given to *methods* of teaching; the aim being to develop the *subject* in hand, and not, except incidentally, the *mode* of teaching it.

The fee for each course is \$20.

MATHEMATICS SA: PLANE TRIGONOMETRY.

This course is intended for persons who have not studied Trigonometry. It will be found serviceable for teachers of Algebra and Geometry and for those preparing to teach Trigonometry. It may be counted as a half-course by students in Harvard College or the Lawrence Scientific School.

A good knowledge of Plane Geometry and of Elementary Algebra, is required for admission to this course. It will cover the usual topics, such as measurement of angles, the trigonometric functions, use of trigonometric and logarithmic tables, solution of triangles, applications to heights, distances and areas, trigonometric identities, inverse trigonometric functions, and trigonometric equations.

The fundamental formulæ of the subject will be carefully deduced, and familiarity with them secured by numerous exercises and applications. Trigonometry is an indispensable introduction to higher Mathematics as well as a most serviceable tool of investigation in applied Mathematics; and the aim of the instructor will be to present the subject in such way as to make it serve both these ends.

The Instructor, Dr. H. H. BROWN, 32 Divinity Hall, Cambridge, Mass., will furnish any further information.

MATHEMATICS SB: ANALYTIC GEOMETRY.

This course will be serviceable for teachers of Algebra, Geometry, Trigonometry, or Physics; also for persons preparing to teach Analytic Geometry; and for students in College or Scientific School who are preparing to take up Differential and Integral Calculus. In order to do satisfactory work in it the student should have a good knowledge of Plane Geometry, of Algebra through quadratic equations, and of Plane Trigonometry.

The work in Analytic Geometry will include a study of the straight line, circle, ellipse, parabola, and hyperbola, in Cartesian and polar coördinates. Some time will be given to the plotting of other curves, as well as to the derivation of the equations of given curves.

Much stress will be laid on the solution of problems and exercises, and a considerable amount of written work will be expected from the student.

Instruction will be given mainly by lectures, but Ashton's *Plane and Solid Analytic Geometry*, (Charles Scribner's Sons) will be used for reference and as a source of exercises.

The Instructor, Mr. J. L. LOVE, 16 University Hall, Cambridge, Mass., will furnish further information concerning this course.

MATHEMATICS SD: ADVANCED ALGEBRA.

This course is designed to be serviceable for teachers of Algebra, Trigonometry, and Analytic Geometry; and for students in the Lawrence Scientific School for whom advanced Algebra is prescribed. The topics of greatest interest and value will be treated. The Instructor believes that the free use of certain simple geometric concepts will greatly aid the student both in comprehending and in remembering algebraic principles. Graphical illustrations and methods will, therefore, be introduced and used whenever they can be made serviceable.

Some of the topics to be studied are: Algebraic numbers; laws of exponents; simple and simultaneous linear equations; surds; imaginaries; theory of quadratic equations; simultaneous quadratic equations; permutations and combinations; theory of equations; the binomial theorem when the exponent is a positive integer;

arithmetical and geometrical progressions; determinants; and continued fractions.

Other topics which will be treated if time allows are: variables and limits; scales of notation; convergency and divergency of series; undetermined coefficients and partial fractions.

While the method of instruction will be modified by the needs of the members of the class as students, special pains will be taken to make the presentation suggestive from the standpoint of the teacher.

The course will be conducted mainly by lectures. The student is asked, however, to be provided with a copy of Hall and Knight's *Algebra for Colleges and Schools*, revised by Sevenoak. Other books, to which reference will be made, will be reserved in the College Library.

The preparation expected of those taking this course will be what is generally required for admission to College. The work on simple and quadratic equations will assume that the student has read these topics previously.

Any additional information will be gladly furnished by the Instructor, Dr. H. H. BROWN, 32 Divinity Hall, Cambridge, Mass.

MATHEMATICS SE: SOLID GEOMETRY.

This course will be serviceable for teachers of Geometry and Algebra, for students in the Lawrence Scientific School or Harvard College, and for students preparing for the Harvard Admission examination in Solid Geometry. It will cover the ground included in the standard treatises on elementary Geometry. A good knowledge of Plane Geometry is required for admission to the course; and the student should review Plane Geometry before coming, in case he has not that subject freshly in mind. No previous study of Solid Geometry is expected.

The text-book will be followed pretty closely in teaching this subject, and much emphasis will be placed on oral demonstrations at the blackboard by the students.

Numerous original exercises and applications to numerical problems will be proposed.

Further information will be furnished by the Instructor, Mr. C. H. ASHTON, 31 Maple Ave., Cambridge, Mass.

MATHEMATICS S2: CALCULUS.

This course is intended for teachers of Mathematics, and for students in the Lawrence Scientific School who wish to use a portion of the vacation to prepare for advanced courses in which the Calculus is required.

A thorough knowledge of Algebra, Plane Trigonometry, and of Plane Analytic Geometry, is required for admission to this course. Persons contemplating taking it are requested to write to the instructor, or to see him, before the course begins, describing fully their mathematical training in order that he may advise them whether they can profitably take the course.

The basis of instruction will be Love's *Differential and Integral Calculus*; and the work will include as much of this book as can be mastered within the six weeks. It is expected that the elements of differentiation and of integration shall be thoroughly learned by the student and that he shall be able to apply these methods to problems in Geometry and Mechanics, including problems in maxima and minima, indeterminate forms, areas and lengths of plane curves, etc.

The aim of the course will be to lay sound foundations for further study of the Calculus. No previous study of the subject will be required of those who enter the course. It is not designed to be a review, though it may be taken for that purpose.

For further information concerning this course, apply to Mr. C. H. ASHTON, 31 Maple Ave., Cambridge, Mass.

ASTRONOMY.

ROBERT WHEELER WILLSON, PH.D., *Assistant Professor of Astronomy.*

This course is primarily intended for those who teach Elementary Astronomy, and is nearly equivalent to the requirement in Astronomy for admission to Harvard College. Young's *Elements of Astronomy* is used for reference. The apparent motions of the heavenly bodies are determined as far as possible from observations made by the students with simple and inexpensive instruments. The method is adapted to high school classes or to the teaching of elementary

astronomy in college and may well supplement the text-book study of the subject. It is, in large part, applicable in cases where it is impossible to assemble classes for evening observations. The observations on the sun and moon, the work with the celestial globe, and the graphical study of the orbital motion of the planets are of value in giving a keener interest in the subject and a more thorough knowledge of its fundamental principles.

The first exercise consists in recording during the day the various positions of the shadow of a pin. From this record the altitude and azimuth of the sun at each observation are determined by a graphical method, the successive positions plotted on a small plaster of Paris hemisphere, and the character of the diurnal motion examined. The principal circles and points of reference are then marked on the hemisphere and defined, and the method of fixing a meridian line is deduced.

By means of a small telescope [altazimuth], with circles graduated to degrees, the altitude and azimuth of about a dozen stars are observed and these being plotted on the hemisphere the character of their diurnal paths is studied. The ideas of polar distance, declination, hour angle, and sidereal day are introduced and the diurnal motions compared with that of the sun.

The advantages of fixing the position of a star by its declination and hour angle are pointed out and in the evening the hour angles and declinations of as many objects as possible are measured with the altazimuth, which for this purpose may be adjusted as an equatorial. In addition to observations of the moon thus made each student is expected to devote a few minutes every evening to plotting the place of the moon upon a star map by noting its distance and direction from neighboring stars.

A conspicuous star of those observed is chosen as a point of reference and this and the other stars are plotted in their proper relative positions upon a blank sphere. By observations with the equatorial and a clock regulated to sidereal time the position of the sun with reference to the same star is determined from day to day and plotted upon the sphere, revealing the sun's motion in the ecliptic. The point where the ecliptic cuts the equator is approximately determined; sidereal time, right ascension, and apparent solar time are defined; and problems are treated which involve the relations between apparent and mean time, standard time, and longitude.

The celestial globe is next taken up and used by each student in solving many problems of which the following may serve as examples: —

To find the time of sunrise and sunset at any place and date.

To find the time by the sun's altitude upon a given date.

To find at what latitude the midnight sun is visible at a given date.

To find the altitude and azimuth of any star at any given time.

The moon's phase being given for any date to find its time of rising and setting.

The path of the moon as found by the student is now plotted upon the sphere, and the position of its intersection with the ecliptic, and its inclination to the latter, are determined. By comparison with similar observations made by students of previous years the regression of the node is made evident and its rate ascertained.

The relation between the motion of the node and the recurrence of eclipses is briefly discussed.

The phenomenon of the harvest moon and its relation to the position of the node is explained.

The remainder of the course consists mainly of laboratory work, in which the relation between the real and apparent motions of the planets is studied by graphical methods, as indicated in the following outline of the work.

The student is provided with a set of ellipses corresponding to the orbits of the principal planets and required to place them in their proper relative positions. The positions of the planets at different dates are marked upon this diagram and their latitudes and longitudes as seen from the earth thus approximately determined.

Their times of rising and setting on given dates are found by the celestial globe. Other problems solved are: —

To find the elongation of a planet at a given date.

To find the date of opposition of a planet in a given year.

To find the greatest elongation of an inferior planet.

In what month and how often are the oppositions of Mars particularly favorable for observations of its surface?

Some observations are made upon variable stars, meteors, and the duration of twilight, and an opportunity will be given to visit the Harvard Observatory and see something of its work.

This course will begin on Friday, July 5, and end on Thursday, August 15. The fee for tuition and laboratory expenses is \$30.

Instruction is given by lectures, laboratory work, and observation. The class will meet five times a week, from 10 to 1 (and occasionally in the evening) in Room 4, Lawrence Hall. A knowledge of Algebra and Geometry is required. In order that adequate provision of apparatus may be made it is desired that all who intend to take this course give notice before June 15.

Further information concerning this course may be obtained from Prof. R. W. WILLSON, 64 Brattle St., Cambridge, Mass.

SURVEYING.

DANIEL LAWRENCE TURNER, C.E., *Instructor in Surveying and Hydraulics.*

PLANE SURVEYING.

The course will be given in the field and will require four weeks work.

The following subjects will be included: pace and chain surveying, surveying with the prismatic and surveyor's compass, transit surveying, traversing, differential and profile levelling, mining chains, cross-sectioning, transit-stadia and plane-table topographical surveying, sextant, computations, and maps.

The course is required of all students in Civil and Mining Engineering, and in Geology; it is known as Engineering 4a, and is designed to give the student practical field experience. The student should have already studied Geometry and Plane Trigonometry; and should obtain a copy of Plane Surveying, by Wm. G. Raymond (American Book Co., publishers) as a text-book.

See note under Railroad Surveying.

The fee for the course is \$20. The probable expense, including the fee, may be estimated at from \$60 to \$75.

The course will begin about the middle of June. For the date, the place, and other information, address the instructor, Mr. D. L. TURNER, 16 University Hall, Cambridge, Mass.

GEODETIC SURVEYING.

A course in Geodetic Surveying — known as Engineering 4c — requiring two weeks work, will follow the course in Plane Surveying.

The course will require a knowledge of Plane Surveying.

In Geodetic Surveying will be included: a base-line measurement with a steel tape, angle observations, astronomical observations to determine absolute position, computations, and the mapping of the triangulation.

See note under Railroad Surveying.

The fee for the course is \$10, and the probable total expense from \$40 to \$50.

For other information, address the instructor, Mr. D. L. TURNER, 16 University Hall, Cambridge, Mass.

RAILROAD SURVEYING.

The course in Railroad Surveying—known as Engineering 4d—will require a knowledge of Plane Surveying.

The work in the course will consist of problems in simple, compound, and transition curves; a reconnaissance and preliminary survey of a railroad line; the map location and location surveys; and slope-staking, earth-work computations, and cost of construction. This work will occupy three weeks and will follow Geodetic Surveying.

Students intending to take this course are advised to review Plane Trigonometry and the chapters of Geometry on the circle. Searle's *Field Engineering* will be used as a text-book (Wiley & Sons, New York).

The fee for the course is \$15, and the probable total expense from \$50 to \$60.

If the courses in Plane, Geodetic, and Railroading Surveying are all taken, they may be counted as one and one-half courses towards the degree of A.B.

The fee for all of the courses taken together is \$40, and the probable total expense from \$110 to \$125.

For other information, address the instructor, Mr. D. L. TURNER, 16 University Hall, Cambridge, Mass.

SHOPWORK.

WALTER SAFFORD BURKE, *Assistant Professor of Mechanical Engineering.*

Four shopwork courses will be given consisting of practice in the blacksmith shop, pattern shop, foundry, and machine shop, supplemented by lectures and by visits to the workshops within easy reach of Cambridge.

These courses are intended to give students a knowledge of the materials and methods of manufacture adapted to the different engineering requirements, so that they may be able to make practical and economical designs of machinery. Students in these courses also acquire considerable skill in the use of tools.

The courses are intended primarily for students in Engineering, and are entitled Engineering 10a, 10b, 10c and 10e.

The Rindge Manual Training School, situated near the University, will be used for the above-mentioned instruction. It has complete equipment for about one hundred and fifty students, with all facilities for practical instruction in benchwork in metals, blacksmithing, pattern-making, brass founding, and machine-tool work.

10a. Chipping, Filing, and Fitting. — Use of hand tools. — Fitting by hand. — Study of the metals in practical working. — Lectures and laboratory work.

10b. Blacksmithing. — Use of tools. — Forging, welding, tool-dressing and tempering. — Lectures and laboratory work.

10c. Pattern Making and Foundry Practice. — Use of wood-working tools. — Casting in iron and alloys. — Lectures and laboratory work.

10e. Machine-Shop Practice. — Use of machine tools. — Construction of parts of machinery, finishing and assembling parts. — Lectures and laboratory work.

The courses in Chipping, Filing, and Fitting, and in Blacksmithing will begin about June 10 and will continue till about July 10. The courses in Pattern Making and Foundry Practice, and in Machine-Shop Practice will begin about July 10 and will continue till about August 15.

All four of these courses may be taken in one summer.

The fee will be \$25 for each course.

For further information concerning these courses apply to Professor W. S. BURKE, 13½ Hilliard Street, Cambridge, Mass.

PHYSICS.

WALLACE C. SABINE, A.M., *Assistant Professor of Physics.*

WILLIAM EDWARD MCELFRESH, A.M., *Assistant in Physics.*

WILLIAM D. COLLINS, A.M., *Professor of Physics, Earlham College, Richmond, Ind.*

Two courses in Physics will be given in the Jefferson Physical Laboratory.

The laboratory hours will be from 9 A.M. to 12.30 P.M., and from 2 to 5 P.M., five days in the week. The laboratory will be open, for those desiring to work, from 8.30 A.M. to 1 P.M., and 2 to 5.30 P.M., and on Saturdays from 8.30 A.M. to 1 P.M.

Fee for tuition and use of apparatus for each course, \$30.

ELEMENTARY PHYSICS.

The primary object of the course will be to instruct teachers of secondary schools in the kind of laboratory work required to fit students for college in Elementary Experimental Physics.

It is believed, from the testimony of teachers who have taken the course during previous summers, that this work will be found helpful to all instructors in experimental physics who have not already performed quantitative experiments in that science.

Students who wish to fit for Harvard College in Experimental Physics, if they already possess a fair knowledge of any one of the better elementary text-books, will find that the experimental work of the Summer School added to this will constitute a satisfactory preparation for the entrance examinations.

About two hours daily will be devoted to informal lectures and to illustrative experiments by the instructor, and about four hours to individual experimentation (mainly quantitative) by the class. Students should understand that it is not worth while to undertake *any other course* at the same time with the Elementary Physics.

Further information may be gained by consulting the pamphlet issued by the University entitled *A Descriptive List of Experiments in Physics* (price, \$.40), or Hall and Bergen's *Physics* (Henry Holt & Co., \$1.25), which contains the full text of the pamphlet, with discussions and explanations.

ADVANCED COURSE IN PHYSICS.

The object of the course is not only to give skill in physical manipulation, but also to enable the student to familiarize himself with physical phenomena by personal observation and accurate measurement. The course should properly be preceded by some elementary laboratory work, though it has been taken with profit by those not so trained who were more or less familiar with the subject from text-book study.

The following partial list of the experiments will indicate the nature of the laboratory work : —

MECHANICS.

Vernier gauge.
 Micrometer gauge.
 Spherometer.
 Nicholson's Hydrometer.
 Specific gravity of a solid by Nicholson's hydrometer.
 Reading by vibrations.
 Sensitiveness of a balance.
 Double weighing.
 Weight in vacuo.
 Density of a solid by submersion.
 Capacity of a specific gravity bottle.
 Density of a solid by the specific gravity bottle.
 Measurement of surface tension by capillary action.
 Force of gravity, Borda and Katers' pendulum.
 Torsion pendulum : moment of torsion and moment of inertia.

SOUND.

Pitch by the sonometer and by the siren.
 Musical interval.
 Velocity of sound in air by the resonance tube.
 Velocity of sound in brass.
 Organ pipes : overtones.
 Helmholtz analysis of sound.
 Liissajou's Figures.
 Chladni's Figures.

LIGHT.

Bunsen's Photometer.
 Radius of curvature and conjugate foci of a concave mirror.
 Radius of curvature of a convex mirror.

Sextant.

Spectrometer : angles of a prism.

Index of refraction.

Law of the double convex lens.

Magnifying power of a telescope.

Terrestrial telescope and opera glass.

Spectrum of an incandescent solid : flame spectra.

Spark spectra of metals.

Absorption spectra.

Solar spectrum.

Measurement of the wave length of light.

MAGNETISM AND ELECTRICITY.

Magnetic lines of force.

Normal component of magnetization.

Horizontal component of the Earth's magnetic force : Magnetic pendulum.

H by the Magnetometer : First method.

H by the Magnetometer : Second method.

Tangent Galvanometer.

H by the deposition of copper.

H by the electrolysis of water.

Equipotential lines and lines of flow.

Wheatstone's Bridge, wire form and box form.

Wheatstone's Bridge, box form.

Specific resistance.

Battery resistance and electromotive force : Ohm's method.

Battery resistance : Mance's method.

Electromotive force, by comparison.

Calibration of an astatic needle galvanometer.

Measurements of resistance in absolute units.

Thermoelectromotive force.

Electromagnetism : Induced currents.

Distribution of magnetism.

The laboratory work will be accompanied by illustrated lectures and by problem work.

The course corresponds to Physics *C* of the Harvard Catalogue.

For further information concerning these courses apply to Asst. Professor W. C. SABINE, 40 Shepard Street, Cambridge, Mass.

CHEMISTRY.

JOSEPH TORREY, JR., PH.D., *Instructor in Chemistry, Director of Courses.*

WILLIAM J. HALE, A.M., *Assistant in Organic Chemistry.*

OTIS FISHER BLACK, A.B., *Assistant in Elementary Chemistry.*

DANIEL F. CALKINS, A.M., *Assistant in Inorganic Chemistry.*

During the summer of 1901 the Chemical Laboratory of Harvard University will be open from July 5 to August 15, and instruction will be given as follows:—

ELEMENTARY THEORETICAL AND DESCRIPTIVE CHEMISTRY.

This course is intended primarily for those engaged in teaching Chemistry in secondary schools. It will consist of lectures and laboratory work designed to set forth clearly and thoroughly the fundamental principles and facts of Chemistry. Special attention will be given to modern views and theories so far as they can be profitably dealt with in an elementary course.

ADVANCED COURSE IN GENERAL CHEMISTRY.

This course will consist mainly of laboratory work with occasional lectures.

The laboratory work will involve some inorganic preparations, the graduation of instruments, and some work in elementary physical Chemistry.

ELEMENTARY ORGANIC CHEMISTRY.

The course will consist of a series of lectures accompanied by laboratory work. The ground covered will be necessarily limited, but the treatment will be thorough and systematic.

No text-books are required in any of these courses. The laboratory is open from about eight o'clock in the morning until five o'clock in the afternoon, and students can work as much as they choose within these limits.

The fee for each course is \$25. In addition to this, each student is required to deposit \$15 with the Bursar. Of this amount \$10 covers the cost of materials consumed. The other \$5 covers the

breakage of apparatus. If the breakage is less than five dollars worth, the balance will be returned to the student at the end of the course; if it is more than this, the student must pay the extra charge.

Dr. TORREY will be in Boylston 6 from 8.30 A.M. to 12 M., and from 1.30 P.M. to 5 P.M. on Friday, July 5, for consultation and arrangement of hours.

For further information concerning these courses apply to Dr. JOSEPH TORREY, 8 Avon Street, Cambridge, Mass.

BOTANY.

EDGAR WILLIAM OLIVE, S.M., A.M., *Instructor in Botany.*

CYRUS AMBROSE KING, A.M., *Instructor in Botany, Indiana University.*

JAMES B. DANDENO, A.M., *Assistant in the Botanical Museum.*

Two courses in Botany will be given at the Botanic Garden of Harvard University, corner of Garden and Linnaean Streets, beginning July 5 at 10 A.M., and ending August 15.

The laboratories will be open from eight until one o'clock, five days in the week. The remainder of the day may be spent by the student in excursions or in working up special problems in the garden or greenhouses, or, preferably, in reading or correlating references. Standard botanical books, drawn from the department and College libraries, will be supplied and copious references will be given each day.

The fee for each course is \$25.

I. ELEMENTARY MORPHOLOGICAL AND PHYSIOLOGICAL BOTANY.

This course is intended especially for those who have had little or no preparation in Botany. It is the equivalent of the introductory course, Botany 1, in Harvard University and may be counted as a half-course towards a degree.

The lectures cover the principal topics in general morphology and physiology of plants; the structure, functions, and habits, especially of flowering plants, their classification, distribution, adaptations, and uses.

Gray's *Manual* will be needed in Course I, and Gray's *Structural Botany* and Goodale's *Physiological Botany* will be found useful.

II. ADVANCED COURSE IN MORPHOLOGY AND ECOLOGY.

While this course is planned especially for teachers, it should prove helpful to any desiring to refresh their knowledge of the subject from new points of view. Some preliminary knowledge of the subject is expected. Methods of botanical instruction will receive attention. The latest text-books will be in the laboratory, and their degree of usefulness in the teaching of elementary botany will be discussed.

The evolution of the plant kingdom, as illustrated by types of the main groups of plants, will be emphasized. Compound microscopes and other necessary appliances will be furnished. Methods of cultivation and examination of the bacteria will be explained; illustrations from the slime moulds, algae, fungi, ferns and their allies, as well as types of the higher plants, will be utilized in the study of the phylogeny of plants.

Members of the class who wish to count this course as a half-course towards a degree will be required, as in the preceding, to take an examination on the laboratory work and lectures. Certificates will be given to all who satisfactorily complete the work.

Field excursions, of a half or a whole day, will be required in each course. These will be made either on Saturdays, or on afternoons of other days. Whenever possible the plants studied will be observed in their native environment, as they grow naturally and undisturbed. Attention will be given not so much to collecting specimens for identification, as to seeking illustrations of the principles of adaptation. Illustrative material may be collected and preserved however, and those who have cameras will find abundant opportunity to secure photographs of interest.

The following may suggest the nature of the field-work: An excursion to the coast at Nahant, for collecting and observing seaweeds; to Hammond's Pond to observe the swamp plants, the pond communities, the fungi, etc.; to Blue Hill to study the distribution of plants over the hillsides, the xerophytic conditions at the summit, the hydrophytic conditions at the base; leaf shapes and their significance; relations of plants to soil formation, etc.

The Botanic Garden of the University affords unusual facilities for summer study; about seven thousand species are there cultivated

for educational and scientific purposes. Material from the Garden will be furnished to students.

Advanced students wishing to follow a special line of study may do so and will receive assistance from the instructors.

For further information apply to Mr. E. W. OLIVE, 30½ Shepard Street, Cambridge, Mass.

GEOLOGY.

NATHANIEL S. SHALER, S.D., *Professor of Geology, and Dean of the Lawrence Scientific School.*

J. E. WOODMAN, S.B., A.M., *Assistant in Geology.*

Two courses in Geology will be given under the direction of instructors in this department of Harvard University.

S1. ELEMENTARY COURSE.

An elementary lecture, laboratory, and field course in Geology will be given by Professor N. S. SHALER and Mr. J. E. WOODMAN, beginning July 5 and ending August 15. Professor SHALER will give about ten lectures on geological processes.

This course will be in a general way parallel to the courses in Elementary Geology (Geology 4 and 5) given during the academic year, but will afford a much larger share of field-work. It is intended particularly for teachers and others who wish to acquire an elementary knowledge of geological processes and forms, and to learn field methods. It is especially recommended for those who intend to study Physiography. Members of the class who desire to count it as a half-course towards the degrees of A.B. or S.B., at Harvard University or elsewhere, or to obtain a certificate, will be required to take field and laboratory examinations.

The class will meet on July 5 at 10 A.M. in room 2, Museum of Comparative Zoölogy (Oxford Street). Thereafter, except when in the field, the class will meet at 9 A.M.

Outline of Subjects Treated.

The following is an outline of the topics treated by Mr. WOODMAN in the lectures, laboratory, and field. In the field, certain other problems will be taken up as they present themselves, and special

attention will be given at the last to practice in mapping and interpreting selected geologic areas of diverse characters. (See statement of excursions.)

Introduction. Pre-geologic chapters in the earth's history: nebular and meteoric hypotheses; sources of energy acting within and on the earth. Early condition of the earth as a globe. Chemical elements most important in rocks: chemical and physical characteristics. Essential minerals of original igneous rocks: form, structure, composition, macroscopic characters. Groups of minerals: abyssal and hypabyssal igneous rocks. Processes concerned in the genesis of intrusive rocks and forms. Effusive rocks. Intermediate and volcanic processes and forms. Solfataric and vein processes and forms. Earthquakes.

The role of water. Under-water: subsurface, spring, cavern, abyssal, hygroscopic. Weathering of igneous rocks: decomposition; disintegration; methods of action, and effects upon different kinds of rocks. Gradational processes: gravity (talus cones); rain, sheet-flood and rivers (work of running water); seas and lakes (static water); wave and current action, destructive and constructive. Gradational processes (continued): ice; methods of action; theories of formation and motion of glaciers; distribution, past and present; glacial climates. Products of glacial gradation: including moraines, drumlins, eskers, sand-plains, till sheet, rock basins, roches moutonnées. Gradational processes (concluded): wind; erosion, transportation, deposition. Products of eolian gradation: including loess, dunes, eolian limestone, faceted pebbles, caves. Consolidation of strata. Products of mechanical sedimentation: psammites, pelites; pyroclastics. Formation of strata through action of life: lime accumulations, formation of coral reefs; bone and guano deposits; swamps and marshes, peat, coal.

Joints: origin; structure and attitudes in stratified and unstratified rocks; attendant phenomena, — weathering, slipping, veining. **Folds:** origin; synclines, anticlines, monoclines, isoclines, synclinoria, anticlinoria; complications caused by axial deformation. **Normal faults;** reversed faults; flexure faults: origin. **Thrust planes:** mathematics of folds and faults. **Mountain-building and continental deformation:** interaction of deformation and denudation. **Types of mountain structure and their histories:** crustal movements of larger scale; hypotheses. **Contact metamorphism:** methods;

products. Dynamic metamorphism: local, regional; consolidation, cleavage, foliation, formation of new minerals; schists and gneisses.

Divisions of geologic time: periods and subdivisions; how determined.

Geological surveying: methods of areal work in the field; symbols; map-making; sections; interpretation of the history of regions; special problems.

Outline of the organic series: plants; animals. Fossilization: parts which are preserved; methods of preservation; imperfections in the geological record.

During the latter part of the course, each student will be given individual study in the literature of geology, including the abstracting of some original paper.

Excursions.

The following are among the excursions planned for 1901. Those marked * will occupy a whole day; others will be shorter, except that to Provincetown. Some of the matters which the localities illustrate are noted under each excursion. The order may vary somewhat from that given below.

General introductory excursion to the Blue Hills of Milton, or College Hill, Somerville: the character of geologic changes will be discussed. *Beach Bluff and Clifton: intrusive igneous rocks; dikes, veins; magmatic differentiation; structures in abyssal and hypabyssal rocks; erosive marine action; old shore lines; survey of Lincoln dike. Brighton: weathering of diabase; amygdaloidal malaphyr, and its weathering; involved structures and contacts. Medford: 300-foot dike and its weathering; contacts. Almshouse quarry, West Somerville: veins; dikes and their relations; simple structures in sediments — joints, mud-cracks, ripple-marks, folds, faults; contact metamorphism; sills. Pemberton and Nantasket: geologic character of Boston Harbor; constructive marine action; ancient volcanic lava flows and ash beds, and their structures. Nahant beaches: sand and boulder beaches of spit and pocket types; tying of islands and filling of sheltered waters; beach-marks made by wind, water and organisms. West Cambridge: sedimentation; structures of sediments, and connected glacial problems; leaching by plants; mud cracks and other surface markings of mud flats. *The Nahants: dikes and their erosion: sea-caves; spouting horn;

joints; stacks; natural bridge; lower Cambrian limestones and pelites, tilted, faulted; fossils; rock structures, and weathering; protective effects of algae and barnacles; effect of structures upon shore profiles. *Marblehead Neck, beach and bed-rock: boulder spit beach, its structure and topography; outlines of windward and leeward side; beach cusps; composition by kinds of rock; complicated dike structures in aporhyolites and granites; effects of texture and jointing of igneous rocks upon topography; involved contacts of granites with ancient sediments; metamorphic structures of sediments; brecciated flows of aporhyolite; Bostonite. Winthrop: alignment, composition and erosion of drumlins; growth of beaches and marshes. Newtonville: stratified drift; eskers, glacial sand-plains, kames, kettle-holes. Waverly: association of different forms of stratified drift. *Provincetown (two days): dunes, often encroaching on forest; spit formation; faceted pebbles; marine action on unconsolidated strata; history of region. Mystic river quarries, Somerville; pelites; dikes, sills, joints, folds, faults, veins; interpretation of history. Arlington: glacial boulder moraine and its topography. *Cape Ann: moraine, structure, topography; post-glacial weathering; Rockport granite quarries, structures and history of rock; marine phenomena. *Quincy and West Quincy: different types of granites; structures, erosion phenomena; quarry processes; contacts with sediments.

The following excursions are designed for practice in geological surveying. The regions will be mapped, structure determined, sections made where necessary, and the history worked out as far as possible. Choice will be made of as many as time permits. *Pine Hill, Medford; *Eastern Point, Nahant; West Somerville; *Bridge-water; Auburndale; Squantum. In addition to these excursions, several days will be spent consecutively in individual field work upon assigned areas in the vicinity of Cambridge, partly with the instructor, partly alone.

Opportunities for Making Collections and Photographs.

Teachers will have opportunities to collect suites of laboratory material for personal or school use, and to take photographs of a large variety of geologic phenomena.

Almost all the subjects treated in the course, with the exception of fossils, can be fully illustrated by specimens which are to be

found within a few miles of the University, or by photographs, or by both. The list of excursions will give a general idea of the localities at which various classes of material may be expected.

Library Facilities.

A small reference library will be kept in the laboratory. For additional reading, the following collections are accessible. The College Library at Gore Hall, possessing many geological works, is for circulation and reference. The Library of the Museum of Comparative Zoölogy and the Whitney Library, in the same building, are for reference only.

The Gardner Collection of several thousand photographs and slides will be drawn upon, — the photographs for use in the laboratory, the slides in occasional lantern lectures.

Personal Equipment.

A hammer, compass, clinometer (preferably combined with compass), note-books, lens, colored crayons, and one or two local maps are essential: advice as to the purchase of these will be given on the first day of the course. Collecting bags will be found useful. Those who wish to take photographs on the excursions are advised to bring hand-cameras.

The fee for this course is \$20.

For further information concerning the course, address Mr. J. E. WOODMAN, Hotel Beacon, 372 Oxford Street, N. Cambridge, Mass.

[S2. FIELD-WORK.]

[Omitted in 1901.]

An advanced course in geological field-work, including a study of igneous rocks and sediments with a variety of secondary structures.

In 1900 this course was conducted in New York and Connecticut, by Professor A. P. BRIGHAM, and Mr. J. B. WOODWORTH.]

S3. ADVANCED FIELD-WORK.

Training in field research, and in the methods of professional geological field-work. Professors SHALER, DAVIS, and WOLFF, Asst. Professor JACKSON, and Mr. J. B. WOODWORTH.

Students of maturity and training may be furnished opportunity for advanced individual study in connection with the professional work of the instructors.

GEOGRAPHY.

HENRY T. BURR, S.M., *Instructor in Geography*, Normal School,
New Britain, Conn.

_____, *Assistant*.

A general course in Geography will be given in the geographical lecture-room and laboratories, Harvard University Museum, Cambridge, beginning Friday, July 5, and closing Thursday, August 15.

The course is designed primarily to meet the needs of teachers of Geography in secondary schools. It will also aid superintendents and teachers in normal schools, who wish to inform themselves on the methods and results of modern geographical study.

The first meeting will be at ten o'clock, Friday, July 5, in the Geographical Lecture-Room, University Museum, Oxford Street, Cambridge. Thereafter, lectures will be given each morning at nine and eleven o'clock with an intermission of an hour. The afternoons will be devoted to laboratory and field exercises. General excursions will usually be offered on Saturdays.

Professor W. M. Davis will give about six lectures on special topics.

The course will correspond in a general way to the elementary course in Physical Geography given during the academic year (Geography A of Harvard University Catalogue), and will consider chiefly the physical features of the land, ocean, and atmosphere, as more fully outlined below. Those who follow it successfully should be able to teach this subject in accordance with the recommendations of the Conference on Geography, published in the Report of the Committee on College Entrance Requirements to the National Educational Association (1899).

The chief object of this course is to promote the change in the method of teaching geography, so generally advocated in recent years. The essential feature of this change is the replacement of the usual empirical treatment of descriptive geography by a rational physiographic treatment, so that the understanding shall aid the memory. The main part of the course presents a general outline of physical geography, under headings given below; the grade of

work being adapted to teachers in grammar and high schools. The rational and systematic quality of the subject is strongly emphasized, and sound preparation is thus laid for further personal study.

For those who desire it, a series of local excursions (in addition to the general excursions announced below) will be offered, with special reference to methods of field observation and teaching. These may be regarded as a practical introduction to the use of home geography in school work, as advocated in pamphlets by Professor DAVIS on *The State Map as an aid to the study of Geography*, lately published by the Boards of Education of Connecticut, Rhode Island, Massachusetts, and New York. It is believed that these conferences and field excursions will show that many instructive topics, now reached, if at all, only in the high school, may be easily and profitably introduced into the grammar schools; there replacing certain empirical and antiquated portions of descriptive geography that are now too generally in vogue.

OUTLINE OF SUBJECTS TREATED IN THE COURSE.

The subjects treated in the lectures and illustrated in the laboratory will be selected from the following outline. The second heading below will constitute the main subject of the course during the greater part of the session of six weeks.

1. *Physical features of the lands.* Contrasts of land surface and ocean bottom. Variety of land surface. Climate of the lands. Activities of the lands. Wasting of the lands. Changes of continental outline.

2. *Classification of land forms.* Forms due to movements of the earth's crust. Processes of land sculpture. Stages of sculpture or development: young, mature, and old forms.

Plains: particular features of coastal plains (modern and ancient), as to form, drainage, products, habitation; examples in different stages of development, and in different parts of the world.

Plateaus: varieties of form and drainage, climate, products, conditions determining habitation; examples.

Mountains: different kinds in various stages of development; form, climate, products, control of movement, settlement and occupations; brief account of a few mountain ranges, selected to exhibit these features.

Volcanic structures: cones, lava flows, necks, dikes, sills, laccolites; topographical features developed by their sculpture; distribution.

Rivers and valleys: relation to the economies of the earth. Features characteristic of different stages of river development: divides, lakes, falls, canyons, gorges, flood plains, deltas, etc. Migration of river divides. Underground waters. Arrangement of river courses in land forms of different kinds and in different stages of development. Importance of valleys as lines of human movement and sites of settlement.

Forms assumed by the waste of the land on the way to the sea: talus slopes, soil slopes, alluvial fans, lake plains, flood plains, deltas. Essential dependence of organic forms on rock waste; conditions under which it is best utilized.

Influence of climate on land forms. Humid climate, as under normal conditions of land sculpture, above considered. Arid climate; stony and sandy deserts; withering rivers, dry interior basins, gravel slopes, alluvial fans, dunes, dust plains. Effects of arid conditions on organic life, and especially on human development. Glacial climate; ice and snow deserts; their great extension in the recent past as recorded by moraines, drumlins, till plains, eskers, kames, sand plains, rock basins, drift-clogged and terraced valleys, displaced rivers, lakes, falls and gorges; economic importance of these features in the geography of the Northern States and Canada.

Coast lines. Various coastal forms produced by uplift or depression of the land; simple and irregular coasts. Modification of the outline thus produced by the action of the sea: cliffs, beaches, sand-reefs, bars, etc.; by the action of rivers: deltas. Stages of coastal development: young, mature, etc. Relation of indented and harborless coasts in various stages of development to human settlement and occupations.

3. *The earth as a globe.* — Form, size, and motions of the earth. Sketch of the advance of knowledge on these subjects. Geographical consequences of form, size, and motions of the earth: latitude and longitude, and their elementary determination. Terrestrial magnetism. Simple map projections.

4. *Meteorology.* — Outline of the distribution and variation of temperature over the earth; zones and seasons; the general circu-

lation of the winds, with special consideration of trade winds and westerlies, monsoons, storms, etc. ; distribution of rainfall ; weather, weather maps, and weather prediction ; climate.

5. *Oceanography*. — Distribution and form of ocean basins. Composition and temperature of ocean water. Source, composition, and distribution of sediments on ocean floors. Movements of the ocean waters. Waves ; their cause, motion, progression ; relation to construction of vessels. Surface and deep currents ; their causes and consequences ; their importance in modifying climate ; relation to distribution of plants and animals, and to navigation. Tides ; caused by lunar and solar forces ; modification of the oceanic tidal wave when running ashore ; relation of tides to use of harbors. Work done by the movements of the sea on bottom and shores. Economic products of the oceans ; fisheries, and their relation to the configuration of the bottom, temperature, etc. ; ancient ocean deposits of economic value, marls, phosphate beds, limestones, etc.

6. *Geographical controls of the distribution of plants and animals*. — Temperature, rainfall, form, soil. Mountains, plains, valleys, deserts ; continents, islands. Interdependence of plants and animals. Struggle for existence.

7. *Geographical factors in the history of man*. — Controls of distribution of population ; form, climate, resources, food supply, etc. Location of settlements, growth of cities. Natural and artificial boundaries. Complete submission of savage races to geographic controls. Progressive subjugation of obstacles and difficulties by more intelligent races.

GENERAL EXCURSIONS.

Several voluntary excursions of moderate expense are planned in order to make a beginning in the study of geography out-doors. The excursions here announced are repeated from those of previous sessions.

Streams and valleys : an afternoon excursion to Clematis brook, Waverley. Divides, drainage slopes, stream courses ; lakes, falls, rapids, flood plains ; degrading, graded, and aggrading portions of a stream.

Shore features : an afternoon excursion to Hull and Nantasket, Boston harbor. Original coasts of rock and drift, modified by the

formation of cliffs, beaches and sand-reefs, on exposed shores; and tidal marshes on protected shores.

Ocean-shore features: a three-day excursion to Provincetown, Cape Cod. A long, harborless cliff and beach on the east side or "back" of Cape Cod, now retreating about three feet a year, under the attack of the ocean waves; extensive sand-reefs and spits, forming the "province lands;" some of the bars gaining on the sea, others wasting; ancient sea cliffs, now protected by a foreland of marsh and sand-reef; sand dunes in various stages of growth and destruction, some of them invading the forest.

Glacial topography: afternoon excursions to Newtonville and other points near Cambridge. Various geographical forms of glacial origin, such as drumlins, kames, eskers, and sand plains.

Uplands and valleys: a three-day excursion to Greenfield and Shelburne Falls, Mass. The upland of southern New England, with hills and mountains rising above it (Wachusett and Monadnock, as seen from Gardiner, Winchendon and beyond) and narrow and wide valleys eroded below it (Deerfield and Connecticut); valley terraces and waterfalls (Greenfield and Turner's Falls).

LABORATORY AND LIBRARY RESOURCES.

A large collection of maps, models, diagrams, and photographs will be drawn upon in the lectures and laboratory work.

The map collection includes a full series of the publications of the U. S. Coast Survey, Geological Survey, Lake Survey, Mississippi and Missouri River Commissions, and Hydrographic Office. A number of large-scale American and foreign topographical maps are mounted in groups especially selected for elementary illustrations.

Oceanography is illustrated by numerous charts of ocean depths, temperatures, and currents; a series of tidal curves from various harbors and a "tide globe" exhibit the fact and theory of the tides.

The collection of geographic models includes those by Heim of Zurich, of a glacier, an Alpine torrent, a volcanic island, and a cliffed and beached coast; the Hydrographic model of the western Atlantic and Gulf of Mexico; southeastern England; a French military model on large scale of the upper Moselle valley; Italy on true vertical scale and on true curved surface; the vicinity of Rome and of Naples; and a portion of the Swiss Jura; the Harvard geographical models; and a series of diagram models, constructed in paper

from original designs, to represent typical land forms in various stages of development.

The Gardner Collection of geological and geographical photographs and lantern slides includes, among many others, the originals of the *List of Geographical Lantern Slides* prepared several years ago for the Cambridge public schools.

The College and the Museum Libraries are open for consultation during the session of the Summer School. Besides a full representation of American geological and geographical literature, they contain a large number of works of travel, and of geological and geographical text-books and periodicals, of much value in geographic studies.

Full information will be given by the Instructor to those who desire it, as to cost, place of publication, and method of purchase of maps, models, lantern slides, etc.

The fee for the course is \$20.

Fuller information concerning the course may be obtained by addressing Mr. HENRY T. BURR, Normal School, New Britain, Conn.

PHYSICAL TRAINING.

D. A. SARGENT, M.D., *Director of the Hemenway Gymnasium.*

Though this course is designed especially for instructors engaged in teaching through the winter, and to supplement courses given during the school year, it is also open to all students and to those seeking their personal improvement either by exercise or in learning how to look after their physical welfare.

The exercises are conducted at the Hemenway Gymnasium, on the adjoining grounds, and in the lecture halls of the University, under the direction of Dr. D. A. SARGENT, who takes part in both the theoretical and practical instruction.

The Special Lecturers are, —

Dr. MARSHALL H. BAILEY, *Medical Visitor*, Harvard University.

Dr. CLARENCE J. BLAKE, *Professor of Otology*, Harvard Medical School.

Dr. ELLIOT G. BRACKETT, *Surgeon*, Children's Hospital, Boston, Mass.

Dr. EDWARD H. BRADFORD, *Surgeon*, Children's Hospital, Boston, Mass.

- Dr. GEORGE W. FITZ, Formerly *Assistant Professor in Physiology and Hygiene*, and *Medical Visitor*, Harvard University.
 Dr. ROBERT W. LOVETT, *Surgeon*, Boston City Hospital, Boston.
 Dr. MYLES STANDISH, *Assistant in Ophthalmology*, Harvard Medical School.
 Dr. SAMUEL G. WEBBER, *Consulting Physician*, Adams Nervine Asylum;
Lecturer on Nervous Diseases, Tufts College Medical School.

The Special Instructors in 1900 were, —

- Miss HARRIET ISABEL BALLINTINE, *Physical Director*, Vassar College, Poughkeepsie, N. Y.
 Miss IDA CROWLEY, *Pianist*, Cambridge.
 Mr. FRANCIS DOHS, *Instructor in Gymnastics*, Harvard University.
 Mr. CHRISTIAN EBERHARD, *Instructor in Gymnastics*, Boston Athletic Association.
 Mr. MELVIN B. GILBERT, *Principal*, The Gilbert Normal School of Dancing and Esthetic Gymnastics, Boston.
 Mr. GERMAN F. HOFFMAN, *Superintendent of Gymnasium*, Y. M. C. Union, Boston.
 Major THOMAS D. LANDON, *Commandant*, Bordentown Military Academy, Bordentown, N. J.
 Miss JULIA KING, *Instructor in Voice Training*, Emerson College of Oratory, Boston, Mass.
 Mr. JAMES G. LATHROP, *Instructor in Athletics*, Harvard University.
 Mr. GRANVILLE RAE LEE, *Physical Director*, Portland Athletic Club, Portland, Me.
 Miss ANNA SOPHIA MACDUFFEE, *Instructor in Gymnastics*, Ingleside School, New Milford, Conn.
 Dr. G. L. J. MEYLAN, *Medical Director*, Young Men's Christian Association, Boston, Mass.
 Mr. HARTVIG NISSEN, *Instructor in Physical Training*, Boston Public Schools, and Dr. Sargent's Normal School of Physical Training.
 Mr. WILLIAM H. C. SMITH, *Pianist*, Boston, Mass.
 Miss JENNIE B. WILSON, *Superintendent and Instructor*, Dr. Sargent's Normal School, Cambridge, Mass.

The Student Assistants in 1900 were, —

- Mr. HERMAN O. DREISEL, Miss ELIZABETH ROBB FOTHERINGHAM,
 Miss CLAUDE MARIE FRANCIS, Mr. HANS GOETZ, Miss FLORENCE
 HALL MARSTON, Miss FRANCES MOORES, Mr. N. EDWIN SANDERS,
 Mr. CARL L. SCHRADER, Miss MARY JOSEPHINE SHEEHAN, Miss
 GERTRUDE STEVENSON, Miss ELIZABETH TORREY.

The theoretical work of the course, as at the last session, comprises lectures and practical talks, with illustrations, on the following subjects : —

Applied Anatomy. — Lectures and demonstrations on the action of the muscles and the best methods of developing them.

Elementary and Experimental Physiology. — Lectures on systematic physiology ; advanced work, for those prepared for it, in using apparatus for testing and recording respiratory movements, circulation, etc., studying the effects of exercise on these processes, and in testing reaction time, speed, and quickness in thrusting, and accuracy and quickness in motor responses, etc.

Personal Hygiene. — Lectures on diet, sleep, exercise, bathing, clothing, and the various agents of health.

Physical Training. — Lectures on the theory and practice of physical training, including the history of the various systems, and the adaptation of the different methods to the wants of different institutions.

First Aid to the Injured. — Lectures and demonstrations, practice in bandaging, etc.

Anthropometry. — History of physical measurements ; influence of art and science in determining the laws of human proportions ; variations in physical characteristics and their significance as affecting the health and vigor of the individual and the race.

Growth of Children. — Variations and peculiarities accompanying the growth of children of different ages, and the bearing of these changes upon their mental and moral life.

Physical Examinations and Diagnosis. — Methods of measuring, testing, and examining individuals to determine their variations from the normal and their fitness for engaging in certain pursuits or athletic exercises. Methods of prescribing exercises to meet the conditions of health and strength, to improve the vital capacity, and to secure a harmonious and symmetrical development.

Physical Basis of Mental Life. — Relations of body and mind in health and disease ; dependence of the nervous system upon soundness of structure ; building the brain by improving the body, etc.

Physical Exercise in the Treatment of Spinal Curvature. — Consideration of causes ; preventive measures ; toning up the muscular and osseous systems through appropriate exercises, etc.

Diseases of Women and their Treatment through Physical Agencies.

— Relaxed condition of tissues and organs from lack of physical vigor; injurious effects of faulty habits of dress, emotional disturbances, excessive mental application, and injudicious exercise.

Testing for Normal Vision and Hearing. — Dullness and stupidity often attributable to defective sight and hearing; importance of discovering variations from the normal in time to correct them; consideration of methods.

Massage. — Its relation to physical exercise and the part it plays in physical training; its applications to affections of the joints, muscles, nervous system, etc.

In connection with this division of the work opportunities are offered for practice in Measuring, Testing, Tabulating, and Charting — learning the exact points of measuring and proper manner of testing under the eye of an instructor; acquiring habits of accurate observation in order to secure uniformity in data and avoid the accumulation of errors; considering exceptional cases as they occur; studying the original observations and seeing the natural order of their distribution; and detecting individual variations from the normal by studying tables, photographs, and charts.

The practical work consists of the following exercises: —

Free Movements. — Introductory exercises without apparatus for stretching the muscles, suppling the joints, and setting up the figure.

Calisthenics. — Light and simple rhythmic movements of body and limbs for the cultivation of grace and elegance in form and bearing; figure marching and dancing steps.

Light Gymnastics. — Exercises with wooden dumb-bells, bar bells, clubs, short and long wands, with musical accompaniment, systematic graded calisthenics, with and without dumb-bells, especially suitable for boys and young men; progressive exercises for strengthening the muscles of the arms, chest, back, and shoulders, in preparation for the practice of heavy gymnastics.

Military Drill. — School of the soldier, squad and company formations, and marching evolutions, according to the U. S. Infantry Tactics; practice in voluntary discipline by immediate and accurate response to the word of command.

Methods of Conducting Squad, Class, or Division Exercises. — Practice in bringing bodies upon the floor in different formations, showing the advantages of variety in grouping and order of sequence in exercises.

Gymnastic Games. — Methods of arousing enthusiasm and spontaneity in children, showing the importance of the recreative element in routine gymnastics.

Delsarte Movements and Relaxing Exercises. — Grouping and posing for aesthetic effects; practice in relaxing antagonistic muscles and in making the joints more flexible.

Swedish Gymnastics. — Free movements and exercises on ladders, ropes, booms, and stall bars, according to the Swedish methods.

Heavy Gymnastics. — Vaulting, horizontal and parallel bars, flying and travelling rings, trapeze, ladders, horse, buck, tumbling, jumping, suspended parallel bars, and mat exercises. Twelve series of carefully graded exercises, including some 700 movements on the six most common pieces of heavy apparatus.

Track and Field Athletics. — Suggestions as to arranging programs and conducting athletic meetings; methods of starting and training for sprint and long distance running; practice in field games, bicycling, tennis, shot putting, hammer throwing, pole vaulting, timing, etc.

Boxing. — Class and individual instruction in the different blows and parries, and methods of training by use of dumb-bells, striking bag, etc.

Fencing. — Class instruction in positions, lines of engagement, attacks, parries, etc., according to the French school.

Rowing. — A variety of boats are at the disposal of the school with instruction in rowing if the demand is sufficient to warrant keeping the boat house open.

Swimming. — On Wednesday and Saturday afternoons instruction in the different methods of swimming, floating, treading water, diving, etc., will be given at one of the neighboring beaches.

Voice Training. — Breath placing and control; purity, flexibility, volume and focusing of tones, etc.

Special Exercises on Developing Appliances.— Individual instruction in the use of the following pieces of Dr. Sargent's developing apparatus now found in every well-equipped gymnasium:—

Chest Weights,	Rowing Machine,
“ Expander,	Paddling “
“ Developer,	Sculling “
High Pulleys,	Wrestling “
Low “	Finger “
Side “	Wrist “
Single “	Neck “
Quarter Circle,	Chair Leg “
Folding Table,	Flexor Leg “
Abdominal Table,	Extensor Leg Machine,
Travelling Bar,	Stirrup Leg “
Adjustable Ladder,	Flexor Foot “
Wall Parallels,	Extensor Foot “
Floor “	Rotating Foot “
Inclined Parallels,	Head Lifting “
Travelling “	Shoulder Lifting “
Long Inclined Plane,	Pronating and Supinating
Short “ “	Machine,

The Inomotor.

The Inomotor is a new invention by Dr. Sargent. It contains the fundamental mechanism for a new system of Developing Appliances, Testing Apparatus and Motor Vehicles.

The philosophy of this invention and its uses and application will be taught for the first time at the Summer Course in 1901.

SPECIAL COURSE FOR MEN.

A thorough course in practical gymnastics as used in the Boston Y. M. C. A. gymnasium is offered to men engaged in teaching boys and men in Young Men's Christian Associations, Clubs, or Schools. This course includes graded calisthenic exercises with and without dumb-bells; a comprehensive graded course of elementary, intermediate, and advanced exercises on parallel bars, vaulting bars, horse, buck, suspended parallel bars, and mat and recreative gymnastics especially suited for boys and men.

ELEMENTARY AND ADVANCED COURSES.

The development of the subject of Physical Training during the past few years has made it impossible to cover the ground even superficially in a single season.

The improved facilities at the Hemenway Gymnasium now enables the University to offer two parallel but connected courses in Physical Training, one for beginners, or for students who have had little experience, and one for more advanced pupils and teachers, should there be a sufficient number who desire to take these courses. The courses will be arranged as follows: —

FIRST YEAR.

Theory.

Lectures and Recitations in Elementary Anatomy, Physiology, Physics, Chemistry, and Personal Hygiene. History of Physical Education.

Practice.

Primary and Grammar School Exercises, Free Movements, Calisthenics, Light Gymnastics, Military Drill, Free Developing Exercises, Elementary Fencing, Dancing Steps, Swedish Gymnastics, Elementary Heavy Gymnastics, Voice Training, Swimming, Gymnastic Games.

SECOND YEAR.

Theory.

Lectures and Recitations in Applied Anatomy, Anthropometry, Psychology, Experimental Physiology, Physical Training, Athletics, First Aid to the Injured, Growth of Children and Child Study, Physical Examinations and Diagnosis, Corrective Gymnastics for Spinal Curvature and other Malformations and Deformities, Diseases of Women and their Treatment through Physical Agencies, Testing for Normal Vision and Hearing, Massage, Physiology of Exercise.

Practice.

Special Exercises on Developing Appliances, Advanced Courses in Free Exercises, Light Gymnastics, Military Drill, Fencing, Swedish and German Heavy Gymnastics, School Desk Exercises, Athletic Sports, Figure Marching, Dancing Calisthenics, Relaxing Exercises, Gymnastic Games, Rope Splicing and Construction.

SPECIAL COURSE.

A special course will be given to advanced pupils in Corrective Gymnastics to meet the growing demand for remedial aid in cases

of physical defects and malformations incident to school life. Advanced pupils will also be drilled in making physical diagnoses and prescriptions of exercises for special cases.

Students intending to take the course in Physical Training will find it greatly to their advantage to get themselves into good physical condition by taking a moderate amount of systematic physical exercise, and to pursue the following course of study: —

Gray's Anatomy. — Skeleton (number and forms of bones, spine, thorax, upper and lower extremities); articulations (structures composing the joints); muscles and fasciæ (general description of muscle, tendon, aponeurosis, fascia); arteries and veins (principal arteries and veins of the trunk and extremities); lymphatics (general anatomy of); nervous system (general anatomy of); viscera (heart, lungs, alimentary tract, salivary glands, stomach, intestines, pancreas, liver, spleen, kidneys, pelvic organs).

Waller's Human Physiology. — Blood, circulation, respiration, digestion, food, nutrition and excretion, animal heat; general plan of the nervous system, peripheral nervous system, muscles and nerves; animal electricity, light and vision, sound and hearing; cutaneous and muscular sense; spinal cord and brain.

Hall & Bergen's Text-Book of Physics. — Matter, force, motion, energy, and their relations to applied mechanics in the case of the lever, the wheel and axle, and the pulley; elementary hydrostatics and pneumatics in their relations to the human body; heat with reference to its transference and illustrating the transformation of the energy of chemical combination into heat and other forms of energy in the living body. Illustrated by experiments.

This preliminary study may be supplemented by the following course of reading: —

HERBERT SPENCER. — *Essay on Physical Education: Education.*

MACLAREN. — *Growth and Development: Physical Education.*

MACLAREN. — *Training in Theory and Practice.*

SCHAIBLE — *Systematic Training of the Body.*

HIGGINSON — *Out-Door Papers.*

BLAKIE — *How to get Strong.*

OSWALD — *Physical Education.*

- CLARKE. — *Sex in Education*.
 HUNT. — *Principles of Hygiene*.
 WILSON. — *Handbook of Hygiene*.
 BLACK. — *Ten Laws of Health*.
 DAVIS. — *Hygiene for Girls*.
 EARL OF MEATH. — *Prosperity or Pauperism?*

By the Director : —

- Handbook of Developing Exercises.
 Anthropometric Apparatus, with Directions for Use, etc.
 Military Drill in the Public Schools. — *American Physical Education Review*. Vol. I, Nos. 1 and 2.
 Physical Education in Colleges. — *North American Review*, Feb., 1883.
 Physical Training. — *Sanitarian*, March, 1884.
 Physical Proportions of the Typical Man. — *Scribner's*, July, 1887.
 Physical Characteristics of the Athlete. — *Scribner's*, Nov., 1887.
 Physical Development of Women. — *Scribner's*, Feb., 1889.
 Gymnasium of a Great University. — *Cosmopolitan*, May, 1890.
 Regulation and Management of Athletic Sports. — *Report, American Association for the Advancement of Physical Education*, April, 1892.
 The Physical State of the American People. — *The United States of America*, edited by Professor N. S. SHALER, 1894.
 The Hemenway Gymnasium: An Educational Experiment. — *Harvard Graduates' Magazine*, Dec., 1894.

TWO YEARS' COURSE.

Beginning with the Summer Session of 1899, all students desiring to receive certificates from the University will be required to complete two full Summer courses, or to pass examinations in the theory and practice of the first year's course before being admitted to the second year's course. Students who have taken the full Summer course at Harvard in any previous year, or students who have spent one year at any other Normal School of Physical Training in good standing will be admitted to the second year's course without examinations.

Persons taking the practice course only in the first or second year are not expected to teach, and will not be entitled to a certificate.

Full certificates will be awarded those students who have attended

two sessions in theory and practice, and have passed examinations in all of the following subjects : —

Elementary Anatomy,	Physical Diagnosis,
Applied Anatomy,	Prescription of Exercises,
Elementary Physiology,	Theory and Practice of Training,
Experimental Physiology,	Emergencies,
Personal Hygiene,	Medical and Corrective Gymnastics,
Elementary Psychology,	Practical “
Elementary Physics,	“ Athletics,
Anthropometry,	Rope Splicing and Construction.

In order to pass satisfactory examinations in the above subjects it will be necessary to do considerable preparatory studying and reading before coming to Cambridge. Students who intend to take the course therefore are requested to apply to the Director for more explicit instructions as to the nature of the examinations and the ground they are expected to cover.

Students wishing to receive credit for work done at other schools will be expected to present their certificates, with statements of the amount and character of work accomplished at the commencement of the course, or to pass examinations on those subjects in which they wish to pursue advanced courses.

Entrance examinations for the different courses will be held at the Hemenway Gymnasium on the morning of July 5th, beginning at 9 o'clock.

Special students who do not desire to take the final examinations may be furnished with *certificates of attendance*, if they take the *full course* and participate in all the selected exercises. No attempt will be made to grade the attendance certificates.

Any person desiring to enter the second year's course as a special student will be required to give evidence of the mental and physical ability to pursue the course with profit to himself and with credit to the School.

The schedule, which is made up after the requirements of the students are known, calls for the full time of each week-day except Saturday afternoons — lectures at 9 o'clock for two hours and at 2.30 for one hour; exercises in periods from 15 to 30 minutes long at 11 for two hours and at 3.30 for two hours, in such courses as may be selected.

The session will begin Friday, July 5, and end Friday, August 9, 1901.

Fees: Full course, each year, \$50; Practice, or Theory, each, \$25.

Further particulars and application blanks, on which a list of exercises is printed, will be furnished on application to the Director, Dr. D. A. SARGENT, Cambridge, Mass. Applications should be returned by those intending to enter, with a statement of courses selected, before the first of July.

HISTORICAL EXCURSIONS.

WILLIAM EDWIN DORMAN, A.B., *Assistant in History.*

GUY NEWHALL, A.B., *Assistant in Government.*

A series of excursions, open to all members of the Summer School, will be arranged to the points of chief historic interest in Eastern Massachusetts. Many privileges will be open to members of these parties which are not ordinarily extended to visitors. All details of the excursions are arranged in advance. The fee in each case covers transportation, admittance fees, and lunch or dinner, if the journey lasts more than half a day. Specific announcements will be posted several days before each of the excursions.

SCHEDULE OF EXCURSIONS.

1. *Cambridge, Arlington, Medford, and Somerville.* — (Half-day, probably Saturday, July 6.) Washington Elm and Headquarters, "Bishop's Palace," "Tory Row," Longfellow and Lowell houses, Arlington Tablets, Brooks Estate, Route of Paul Revere, Medford Historical Society, "Cradock" House, Royal House, Stearns (John Brown) House, Old Powder House, Austin House, etc. — By omnibuses; expense, 60 cents.

2. *Charlestown and Old Boston.* — (Half-day, probably Tuesday, July 9.) Bunker Hill and Monument, North End of Boston, Prince Street, British Hospitals, Tileston House, Christ Church. Sites of Gray and Newman Houses, Copp's Hill, Mather-Eliot House, Sites of Governor Hutchinson's Mansion and of Old North Church, North Square, Paul Revere's House, etc. — By special trolley cars; expense, 50 cents.

3. *Lexington and Concord.* — (All day, probably Saturday, July 13.) Route of British Troops, Black Horse Tavern, Harrington House, Munroe Tavern, Lexington Green, Old Belfrey, Buckman

Tavern, Harrington and Hancock-Clarke Houses, Lexington Town-Hall, Concord Bridge, Minute Man, Old Manse, Houses of Emerson, Thoreau, Hawthorne, and Alcott, Sleepy Hollow, Wright Tavern, Concord Antiquarian Society, etc. — By special trolley cars, omnibuses, and train; expense, \$1.75.

4. *Salem and Marblehead*. — (All day, probably Tuesday, July 16.) Roger Williams Church, Roger Williams House, Peabody Museum, Essex Institute, Hawthorne Houses, "House of the Seven Gables," Custom House, Witch Records, Witch Prison, North Bridge, Marblehead Town-Hall, Lee Mansion, King Hooper House, St. Michael Church, Gerry, Story, and Glover Houses, British Landing Place, Burial Hill, Fort Sewall, etc. — By train, steamer, and special trolley cars; expense, \$2.00.

5. *Haverhill and Amesbury*. — (All day, probably Saturday, July 20.) Birthplace of Whittier, Haverhill, Job's Hill, Whittier House, Amesbury, Quaker Meeting-House, Powow Hill, Burial Ground, Captain's Well; steamer on the Merrimac River past the scenes of "The Countess," "Mabel Martin," and other poems. — By special trolley cars, train, and steamer; expense, \$2.25.

6. *Old Boston (continued)*. — (Half-day, probably Tuesday, July 23.) Boston Common, King's Chapel, Granary and King's Chapel Burial Grounds, Province Court, Old South Meeting-House, Old State House, Scene of Boston Massacre, Site of Green Dragon Tavern, Creek Square, Boston Stone, Corn Court, Hancock Tavern, Sun Tavern, Faneuil Hall, etc. — By special trolley cars; expense, 50 cents.

7. *Plymouth*. — (All day, probably Saturday, July 27.) Steamer down Boston Harbor, along the coast to Plymouth. (Points of historic interest will be indicated.) Plymouth Rock, Cole's Hill, Leyden Street, Pilgrim Spring, Winslow House, Plymouth Monument, Old Burying Ground, Pilgrim Hall, Kingston, etc. — Return by train; expense, \$2.00.

BOOKS.

The following books will be found useful for previous reading and study. These and many others will be reserved as a select library on local history and antiquities for the use of students in the Summer School.

JUSTIN WINSOR, Editor: *Memorial History of Boston* (4 vols., Boston, 1880-81).

EDWARD G. PORTER: *Rambles in Old Boston* (Boston, 1887).

MOSES KING: *How to See Boston* (Boston, 1895).

L. POWELL, Editor: *Historic Towns of New England* (N. Y., 1898).

EDWIN M. BACON: *Historic Pilgrimages in New England* (Boston, 1898).

S. A. DRAKE: *A Book of New England Legends and Folk-Lore in Prose and Poetry* (Boston, 1884).

S. A. DRAKE: *Historic Mansions and Highways about Boston* (Boston, 1899).

S. A. DRAKE: *Nooks and Corners of the New England Coast* (N. Y. 1875).

Two inexpensive and useful books which it would be well to own are:—

EDWIN M. BACON: *Walks and Rides in the Country round about Boston* (Boston, 1897); several maps.

J. W. FREESE: *Historic Houses and Spots in Cambridge and Near-By Towns* (Boston, 1897); excellent heliotypes.

THE SUMMER SCHOOL.

1900.

THE SUMMER SCHOOL OF THE FACULTY OF ARTS AND SCIENCES.

GREEK 1.

Bacorn, Louise, M.L. (<i>Univ. of Michigan</i>), <i>Instructor in English, Vassar College,</i>	Poughkeepsie, N.Y.
Baxley, James Angus, S.B. (<i>Southern Univ., Greensboro, Ala.</i>), <i>Teacher,</i>	Greensboro, Ala.
Dunster, Annie Dinx, PH.B. (<i>Univ. of Michigan</i>), <i>Teacher, Toledo, O., Central High School,</i>	Toledo, O.
Margolies, Samuel, <i>Student, Harvard Univ.</i>	Boston.
Pond, Clarence Strong, <i>Student, Boston Univ.,</i>	Boston.
Reagh, Arthur Lincoln, S.B., M.D. (<i>Harvard Univ.</i>), <i>Physician,</i>	W. Roxbury.
Ricketson, James Edgar, S.B. (<i>Mercer Univ.</i>), <i>Principal, Harlem Institute,</i>	Harlem, Ga.
Whitman, Nellie Adams, <i>Student, Radcliffe Coll.,</i>	Auburndale.

GREEK 2.

Blake, Lucy Edith, A.B. (<i>Smith Coll.</i>), <i>Teacher, Monroe West School,</i>	Sandwich.
Brown, Frederic Willis, A.B. (<i>Harvard Univ.</i>), <i>Teacher, Preparatory School for Boys, Stamford, Conn.,</i>	Concord.
Campbell, Mary Randolph, A.B. (<i>Univ. of Nebraska</i>), <i>Teacher, High School,</i>	Lincoln, Neb.
Curtis, Mary Emily, A.B. (<i>Syracuse Univ.</i>), <i>Teacher of Greek, Syracuse Classical Preparatory School,</i>	Syracuse, N.Y.
Mason, Mary Lee, <i>Teacher, High School,</i>	Scranton, Pa.
Supple, Mary Anne, <i>Teacher, High School,</i>	Hopkinton.
Willcox, Charles Henry, A.B. (<i>Yale Univ.</i>), <i>Greek Master, Lawrenceville School,</i>	Lawrenceville, N.J.

LATIN 1.

- Carter, Jane Gray, *Teacher*,
 Clark, Florella Foster, *Teacher in Seminary, Plainfield, N.J.*,
 Cunningham, Edward Freeman, A.B. (*Bates Coll.*),
 Jackson, Helen Hale, *Student, Friend's Cent. School*,
 M'Niff, Katharine, M.E., M.S. (*Bloomsburg, S.N.S., Pa.*), *Teacher of Latin, High School*,
 Powell, Amy Grace, A.B. (*Univ. of Oregon*),
Teacher, High School,
 Simpson, Georgiana Rose, *Teacher, Normal School, Washington, D.C.*,
 Sommerville, Sophie White, *Teacher of Latin and French, Valley Seminary, Waynesboro, Va.*,
 Stirling, Sarah Hall, A.B. (*Swarthmore Coll.*),
Instructor in Latin and Greek,
 Tozier, Clara Belle, A.B. (*Colby Univ.*), *Teacher*,
 Welles, Frank Ephraim, PH.B., A.M., PH.D.,
 (*Illinois Wesleyan Coll.*) (*ibid.*) (*National Normal Univ.*) *Professor of Latin and Greek, State Normal*,
 New York, N.Y.
 E. Peacham, Vt.
 Edgecomb, Me.
 Philadelphia, Pa.
 Harrisburg, Pa.
 Astoria, Ore.
 Cedar Hill, Anacostia, D.C.
 Newport News, Va.
 Philadelphia, Pa.
 Fairfield Centre, Me.
 Genesee, N.Y.

LATIN 2.

- Benson, Clara Manter, A.B. (*Wellesley Coll.*),
Teacher of Latin, Union Classical Institute, Schenectady, N.Y.,
 Hazen, Frances Mary, *Teacher, Mount Holyoke Coll.*,
 Letts, Martha, A.B. (*Stephens Coll.*), *Teacher of Latin, High School*,
 Paige, Alice Browning, A.B. (*Boston Univ.*), *Teacher of Classics, Oakwood Seminary, Union Springs, N.Y.*,
 Richards, Mary Helena, *Teacher, High School*,
 Runkle, Catharine Bird, A.M. (*Columbia Coll.*),
Teacher, Lee School,
 Strode, Leslie, A.B. (*Converse Coll.*), *Teacher of Higher English and Latin, Mrs. I. A. Smith's School, Charleston, S.C.*,
 E. Carver.
 Middletown, Ct.
 Sedalia, Mo.
 Lynn.
 Newark, N.J.
 Cambridge.
 Amherst, Va.

ENGLISH.

ENGLISH A.

- Abramovice, Jeannette Leah, *Assistant Librarian, Aguilar Free Library*, New York, N. Y.
- Adams, May Belle, *Teacher, Rhetoric, Elocution, and Physical Culture, Cazenovia Seminary, N. Y.*, Ashburnham.
Cienfuegos, Cuba.
- Aguirre, Juana Monzon, *Interpreter*, Brooklyn, N. Y.
- Aitken, Nellie Louise, *Teacher, Grammar School*, Puerto Principe, Cuba.
- Arango, Rogerio Freyre y, *Teacher*, Syracuse, N. Y.
- Bacon, Charles Andrews, *Student and Teacher*, New York, N. Y.
- Bergman, Mary Anna, *Teacher, First Assistant, Public School*, Cambridge.
- Billings, Anna Melvina, *Teacher, Gannett School*, Cienfuegos, Cuba.
- Blanchard, Alberto Martinez, *Teacher*, St. Peter, Minn.
- Brown, Emily, *Teacher, Eighth Grade*, Brooklyn, N. Y.
- Burggraf, Josephine Louise, *Teacher, Grammar School*, Lexington, Ky.
- Combs, Elizabeth Brownell, *Student*, Brooklyn, N. Y.
- Dalgleish, Edmere Julie, *Teacher, Grammar Sch.*, Lexington, Ky.
- Dickinson, Anne Virginia, *Teacher, Public Schools*, Brooklyn, N. Y.
- Drury, Susan Flora, *Principal, Devens School, Everett*, Trenton, N. J.
- Eldredge, Emmet Franklin, A. B. (*Mt. Union Coll.*), Everett.
- Teacher of Latin, W. High School*, Cleveland, O.
- Entralgo, Juan, *Teacher*, Trinidad, Cuba.
- Fernandez, Luis, *Interpreter*, Matanzas, Cuba.
- Ferres, Elizabeth Sarah, *Teacher, Grammar Sch.*, Brooklyn, N. Y.
- Finci, Lucian, *Teacher*, Puerto Principe, Cuba.
- Findlay, Helen Anderson, *Class Teacher*, Brooklyn, N. Y.
- Fitzgerald, Lizzie Josephine, *Teacher of Commercial Branches, High School, E. Boston*, Brookline.
- Frank, Daisy Christine, *Teacher, Public Schools*, Dayton, O. [N. Y.]
- Freeman, Mary Louise, *Principal, Graded School*, Saratoga Springs,
- Gleason, Emma Willard, PH. B. (*Boston Univ.*),
Assistant in High School, Rockland.
- Goodall, Moses Lawson, S. B. (*Fiske Univ.*), *Teacher, Central High School*, Louisville, Ky.
- Gray, Florence Jean, Roxbury.
- Griggs, Louise Choice, *Teacher, Public Schools*, Roanoke, Va.
- Harden, Elmer Stetson, Lynn.

- Harris, Edwin Henry, *Teacher of Stenography, High School,*
 Hawbolt, Jennie May, *Teacher, Morrill School,*
 Henry, Marcia, A.B. (*Hiram Coll.*), *Dean Woman's Department and Instructor in English, Hiram College,*
 Hernández, Marcela, *Interpreter,*
 Hernandez, Otilia, *Teacher,*
 Hill, M. Katharine, *Student, Emerson College of Oratory,*
 Hinman, Caroline Lanning, *Teacher, Public School,*
 Hogan, Mary Teresa, *Teacher, Grammar School,*
 Howe, William Farwell, *Sub-Master, Avery Grammar School, Dedham,*
 Hudson, Lillian Manuella, *Teacher of English,*
 Johnson, Maude Lena, *Principal, Grammar Sch.,*
 Kerby, Harriet Adelia, *Head of Department, Grammar School,*
 Kolbe, Anna Clara, *German Special, Public Sch.,*
 Langsdale, Mary, A.B. (*De Pauw Univ., Indiana*), *Teacher, High School,*
 Levens, Carrie Laura, *Teacher,*
 Levens, Sarah Janet, *Teacher, Public School,*
 Loud, Helen Susan, *Teacher, Public School,*
 Lucas, Amelia Frances, O.M. (*Emerson Coll.*), *Teacher of Reading, Illinois State Norm. Univ.,*
 McCay, Georgine Luzenberg, *Associate Teacher of English, McDonagh High School, No. 2,*
 Martinez, Julia, *Teacher,*
 Mulliner, Anna, *Teacher, Public School,*
 Neville, Elizabeth, *Teacher, Public School,*
 Neville, Emily Josephine, *Teacher, Public School,*
 Ollom, Winifred Madeline, *Teacher, Public School,*
 Palmer, Harriet Rose, *Pierce Grammar School,*
 Ripple, Louise Maud, *Principal, Oakland School,*
 Rogers, Virginia, *Teacher, Grammar School,*
 Rouillion, Mary Wigzell,
 Seva, Carolina, *Teacher,*
 Shaw, Sallie Reid, *Teacher,*
 Solon, Cecile, *Teacher, Grammar Grade,*
 Steele, Carrie Elizabeth, *Teacher, Gloucester Agricultural and Industrial Sch., Cappahosic, Va.,*
 Tiant, Carmela Fé, *Student,*
 Everett.
 Portland, Me.
 Geauga Lake, O.
 Brooklyn, N.Y.
 San Antonio de los Baños, Cuba.
 Randolph.
 Trenton, N.J.
 Brooklyn, N.Y.
 Nashua, N.H.
 Nutley, N.J.
 No. Waterboro, Me.
 Brooklyn, N.Y.
 Cleveland, O.
 Indianapolis, Ind.
 Detroit, Mich.
 Detroit, Mich.
 Brooklyn, N.Y.
 E. Carver.
 New Orleans, La.
 Havana, Cuba.
 Camden, N.J.
 Brooklyn, N.Y.
 Brooklyn, N.Y.
 Findlay, O.
 Brookline.
 Chicago, Ill.
 Baltimore, Md.
 New York, N.Y.
 Havana, Cuba.
 Wilmington, Del.
 New York, N.Y.
 Charleston, S.C.
 Havana, Cuba.

Tibbetts, Emma Augusta, <i>Commercial Teacher, High School,</i>	Salem, Mass.
Triana, Manuel Palacio, <i>Teacher,</i>	Caibarien, Cuba.
Tyng, Dudley,	Lexington.
VanderVeer, Margaret Smock, <i>Kindergarten Teacher, Private School,</i>	Arlington Heights.
Webster, Edward Harlan, <i>Teacher, Public School,</i>	Washington, D.C.
Wicker, Katherine, A.B. (<i>Univ. of Nashville</i>), <i>Teacher of English and History, High School,</i>	Tampa, Fla.
Wiggins, Emma, <i>Head-Assistant, Grammar Sch.,</i>	Paterson, N.J.
Wiggins, Minnie, <i>Principal Montclair (N.J.) Primary School,</i>	Paterson, N.J.
Williams, Mrs. Edith Emma, <i>Assistant, Natural History Rooms, Boston,</i>	Brookline.
Zayas, Rogerio Bazan, <i>Teacher,</i>	Puerto Principe, [Cuba.]

ENGLISH B.

Asbury, Mary Elizabeth, <i>Teacher, Grammar School,</i>	Brooklyn, N.Y.
Bache, Joseph A., s.B. (<i>Indiana Norm.</i>), <i>Principal, Riverdale School,</i>	Chicago, Ill.
Baldwin, Ira Preston, PH.B. (<i>Wabash Coll.</i>), <i>Teacher of Rhetoric and Composition, High School,</i>	Lafayette, Ind.
Barrows, Mary Eleanore, A.B. (<i>Smith Coll.</i>), <i>Teacher of English, Oberlin College,</i>	Oberlin, O.
Baylis, Mrs. Sarah, <i>Teacher, Boys' High School,</i>	New York, N.Y.
Bellows, Ellen Derby,	Boston.
Calvin, Katharine, A.B. (<i>Allegheny Coll.</i>), <i>Teacher, High School,</i>	Meadville, Pa.
Carver, John Linton, B.L. (<i>Swarthmore Coll.</i>), <i>Teacher of English, Friends' Central School, Philadelphia, Pa.</i>	Media, Pa.
Denise, Katharine, <i>Asst. Principal, 20th District School,</i>	Dayton, O.
Earhart, Edith Adelia, A.M. (<i>Western Md. Coll.</i>), <i>Teacher, Public School,</i>	Hagerstown, Md.
Esselstyn, Florence Caroline, A.B. (<i>Claverack Coll.</i>), <i>Teacher of English, High School, Schenectady, N. Y.,</i>	Mellenville, N.Y.
Fairweather, Mabel Lilian, <i>Teacher,</i>	Rothsay, N.B.
Field, Mrs. Jennie Hadley, <i>Teacher, High School,</i>	Peterboro, N.H.
Foglesong, Hortense,	Dayton, O.
Given, Margaret, <i>Teacher, Public School,</i>	Everett.

- Graham, Edward Kidder, PH.B. (*Univ. of No. Carolina*) *Instructor in English, University of No. Carolina*,
Chapel Hill, N.C.
- Harris, Luella Alzina, *Teacher of English, High School*,
Bradford, Pa.
- Heath, Lea May, *Teacher, High School*,
Scranton, Pa.
- Lacklen, Mary Louisa, *Teacher of English, High School*,
Wilmington, Del.
- Meade, Alice Gertrude, *Teacher, Rainsford Island House of Reformation*,
Dorchester. [N.J.]
- Morris, Frances Randolph,
W. Long Branch,
- Packard, Elise Prioleau,
Baltimore, Md.
- Poole, Carolina Nicholson, *Teacher*,
W. Roxbury.
- Redick, Mary Glisson, PH.B. (*Ohio State Univ.*),
Findlay, O.
- Instructor, High School*,
Front Royal, Va.
- Samuels, Bernard,
W. Roxbury.
- Snelling, Amy Adelaide,
Centreville, Md.
- Sparks, Ida Clara, *Teacher, Public School, Ruthsburg, Md.*
- Strode, Leslie, A.B. (*Converse Coll.*), *Teacher of Latin and Higher English, Mrs. I. A. Smith's School, Charleston, S.C.*,
Amherst, Va.
- Sweet, Mrs. Anna Walker, *Teacher, Florida Public Schools*,
Titusville, Fla.
- Weddell, Fitz-John, S.B. (*Miss. A. & M. Coll.*),
Associate Professor of English, *Miss. A. & M. College*,
Agric. Coll., Miss.
- Welsh, Georgiene Barron, *Teacher, Hasbrouck Inst.*,
Jersey City, N.J.

ENGLISH C.

- Bargar, Margaret Elizabeth, S.B. (*Buchtel Coll.*),
Emerson College of Oratory, Boston,
Uhrichsville, O.
- Clarke, Ward Robinson, A.B. (*Yale*), S.T.B. (*Harvard Univ.*), *Minister*,
Dover, N.H.
- Clendenin, Lillie Adelle, *Teacher of English, Preparatory Department, Univ. of Illinois*,
Urbana, Ill.
- Dallam, Mary Theresa, *Teacher of English, High School*,
Baltimore, Md.
- Henshey, Frances Genevieve, A.B. (*Wellesley Coll.*),
Instructor in English, Township High School,
Sterling, Ill.
- Jones, Hanson Weems, A.M. (*Univ. of the South, Sewanee, Tenn.*), *Teacher, Assistant in Latin and Greek, Boys' High School*,
Atlanta, Ga.

- Leighton, Walter Leatherbee, *Student, Harvard University*, Boston.
- Miller, Herbert Adolphus, A.B. (*Dartmouth Coll.*), Nashville, Tenn.
Instructor in Latin and Greek, Fisk Univ., Macon, Ga.
- Mosley, Joel Rufus, S.M. (*Univ. of Nashville*), Lexington, Ky.
- Musselman, Nancy Hall, *Student, Univ. of Chicago*,
 Nason, Arthur Huntington, A.B. (*Bowdoin Coll.*),
Dunn Professor of Normal Instruction and English, Maine Wesleyan Seminary and Female College, Kent's Hill, Me., Augusta, Me.
- O'Hara, Abigail Loretta, *Teacher, Ledge St. Sch.*, Worcester.
- Scudder, Sophia Goodspeed, *Teacher, Public School*, Baltimore, Md.

ENGLISH D.

- Fish, Florence, B.L. (*Univ. of Wisconsin*), *Teacher of English, The Western College*, Oxford, O.
- Gordon, Henry Evarts, A.B. (*Amherst Coll.*), *Head Department Rhetoric and Oratory, Colorado College*, Colorado Springs, [Col.
- Long, William Franklin, A.B. (*Franklin and Marshall Coll.*), *Principal of High School*, Johnstown, Pa.
- Wisely, John Benjamin, A.M. (*Indiana Univ.*),
Head of Department Grammar and Composition, Indiana State Normal School, Terre Haute, Ind.
- Wood, Mary, Eastport, Me.

ANGLO-SAXON.

- Ayres, Mary Stevens, A.B. (*Wellesley Coll.*), Brooklyn, N.Y.
- Crowell, Asa Clinton, PH.D. (*Brown Univ.*), *Asst. Professor in German, Brown Univ.*, Providence, R.I.
- Mackenzie, Janet, A.B. (*Michigan Univ.*), *Principal Field School*, Detroit, Mich.
- Schumacher, Charles Augustus, A.B., PH.D. (*Yale Univ.*) *Department of English, Oneonta State Normal*, Oneonta, N.Y.

ENGLISH LITERATURE — CHAUCER.

- Mackay, Jane Maria, *Assistant to Faculty, Brooklyn Training School for Teachers*, Brooklyn, N.Y.
- Martin, Cora Althea Howell, *Teacher, Dr. and Mrs. John MacDuffie's School, Springfield, Mass.*, No. Cambridge.
- Morey, Louise Harriet, A.B. (*Boston Univ.*), *Professor of English, Univ. of Wyoming*, Laramie, Wyo.

- Sweet, Anna Walker, *Teacher, Public Schools, Principal Intermediate Department*, Titusville, Fla.
 Tripp, Walter Bradley, O.M. (*Emerson Coll.*), *Professor of Oratory, Boston College, Teacher of Literature, Emerson College*, Boston.
 Wilson, Grace Clara, *Head of Department, Public School, No. 18*, Brooklyn, N.Y.

SHAKSPERE.

- Baldwin, Ira Preston, PH.B. (*Wabash Coll.*), *Rhetoric and Composition, High School, Teacher*, Lafayette, Ind.
 Blair, Mary Pierpont, *Teacher, Roberts School*, Cambridge.
 Bryant, Lillian, *Teacher*, E. Orange, N.J.
 Burton, Harriet Wright, PH.B. (*Illinois Wesleyan Univ.*), *Teacher of English, Woodside High School, New York City*, Albany, N.Y.
 Calvin, Katharine, A.B. (*Allegheny Coll.*), *Teacher, High School*, Meadville, Pa.
 Carleton, Lena Bacon, *Teacher, Perley Free School, Georgetown, Mass.*, Haverhill, N.H.
 Craig, Edwin Moody, S.B. (*National Normal Univ.*), *Superintendent of Public Schools, Sabina, O.*, Blanchester, O.
 Crane, Katharine Andrew, L.B. (*Univ. of Michigan*), *Charge of English Department, High School*, La Porte, Ind.
 Egar, John Hodson, D.D. (*Racine Coll.*), *Rector, Zion Church*, Rome, N.Y.
 Eldredge, Emmet Franklin, A.B. (*Mt. Union Coll.*), *Teacher of Latin, W. High School*, Cleveland, O.
 Fisher, Daniel Lincoln, A.B. (*St. Lawrence Univ.*), *Teacher, High School*, Hinsdale, N.H.
 Furness, Mary Baker, *Teacher*, Cincinnati, O.
 Heath, Leä May, *Teacher, High School*, Scranton, Pa.
 Henry, Marcia, A.B. (*Hiram Coll.*), *Dean of Woman's Department and Instructor in English, Hiram College*, Geauga Lake, O.
 Keyes, Angela Mary, *Assistant Teacher of English, E. D. High School*, Brooklyn, N.Y.
 Leighton, Walter Leatherbee, *Student, Harvard Univ.*, Boston.
 Loud, Helen Susan, *Teacher, Public School*, Brooklyn, N.Y.
 Morey, Louise Harriet, A.B. (*Boston Univ.*), *Professor of English, Univ. of Wyoming*, Laramie, Wyo.

- Nason, Arthur Huntington, A.B. (*Bowdoin Coll.*),
Dunn Professor of Normal Instruction and
English, Maine Wesleyan Seminary and Fe-
male College, Kent's Hill, Me., Augusta, Me.
- Packard, Elise Prioleau, Baltimore, Md.
- Robinson, Henrietta A., *Principal, Preston School,* Detroit, Mich.
- Solon, Cecile, *Teacher, Grammar Grade,* New York, N.Y.
- Steele, Carrie Elizabeth, *Teacher, Gloucester Agri-*
cultural and Industrial School, Cappahosic, Va., Charleston, S.C.
- Suarez, Mrs. Agnes, *Teacher,* Havana, Cuba.
- Towle, Ralph Egbert, A.B. (*Iowa Coll.*), *Superin-*
tendent of Schools, Humboldt, Ia.
- Wilson, Grace Clara, *Head of Department, Public*
School, No. 18, Brooklyn, N.Y.

EIGHTEENTH CENTURY LITERATURE.

- Case, Mary Maud, L.B. (*Univ. of Minnesota*), *Prin-*
cipal, High School, St. Cloud, Minn. St. Peter, Minn.
- Dalton, Susan Dexter, Lincoln.
- Dierens, Alma, L.B. (*Univ. of Cincinnati*), Cincinnati, O.
- Gray, Florence Jean, Roxbury.
- Harris, Luella Alzina, *Teacher of English, High*
School, Bradford, Pa.
- Huff, Nellie Louise, *Teacher, Everett,* Beachmont.
- Ingersoll, Katharine Isabel, *Teacher, Denver Public*
Schools, No. Evans, N.Y.
- Jackson, Mary, *Student,* Denver, Colo.
- Macphail, Margaret Monroe, *Principal, Blooming-*
dale School, Fort Wayne, Ind.
- Ritchie, Anna Leona, *Assistant in English and*
Latin, G. N. & I. College, Milledgeville, Ga., Harmony Grove, Ga.
- Seva, Carolina, *Teacher,* Havana, Cuba.
- Strong, Anna Moore, *Teacher, Public School,* Brooklyn, N.Y.
- Tiant, Carmela Fé, *Student,* Havana, Cuba.

ENGLISH LITERATURE IN OUTLINE.

- Butler, Julia Teresa, So. Boston.
- Cording, Agnes Amalie, *Teacher, Grammar School,*
Brooklyn, N. Y. Long Island City,
 [N.Y.]
- Edgeworth, Jennie, *Principal, Indianapolis Public*
Schools, Irvington, Ind.
- Fisher, Mary Eliza, *Teacher, Public School,* New Brunswick, N.J.

- Hill, M. Katharine, *Student, Emerson College of Oratory*,
 Janvrin, Charles Edwin, *Teacher, Pennsylvania Institution for the Blind, Philadelphia, Pa.*,
 King, Julia Thompson, *Teacher, Emerson College of Oratory*,
 Leonard, Abigail Eliza, *Teacher of English, Erasmus Hall High School*,
 Leonard, Katharine Philomena, *Librarian*,
 MacArthur, Gertrude Eugenie, A.B. (*Vassar Coll.*),
Teacher of English, Miss Spence's School,
 Owens, Jennie Freeborn, *Teacher, Public School*,
 Palmer, Harriet Rose, *Teacher, Pierce Grammar School*,
 Powers, Lillian Irene, *Teacher, Grammar School*,
 Tripp, Walter Bradley, O.M. (*Emerson Coll.*), *Professor of Oratory, Boston College, Teacher of Literature, Emerson College*,
 VanderVeer, Margaret Smock, *Kindergarten Teacher, Elmhurst Private School*,
 Walker, Ida Cowlishaw, *Student*,
 Weston, Delia Blanche, *Teacher, Emerson Grammar School*,
 Wharton, Alice Bassett, *Principal, Grammar School*,
- Randolph.
 Hampton Falls, [N.H.]
 Boston.
 Brooklyn, N.Y.
 Cambridge.
 New York, N.Y.
 Jersey City, N.J.
 Brookline.
 Brooklyn, N.Y.
 Boston.
 Arlington Heights.
 Jamaica Plain.
 Portland, Me.
 Norfolk, Va.

READING AND SPEAKING.

- Currier, Agnes, *Teacher, Oxford School*,
 Fay, Sidney Bradshaw, A.B. (*Harvard Univ.*),
Austin Teaching Fellow, Harvard University,
 Griffith, George Calvin, *Student, Harvard Univ.*,
 Lyle, Hilliard Graham, LL.B. (*Univ. of Michigan*),
 Norris, Emilie Krider, *Teacher and Public Reader*,
 Wright, Edgar M., A.B. (*Univ. of Nashville*), *Professor of Pedagogy, State Normal College*,
- Malden.
 Washington, D.C.
 Moundsville, W. Va.
 Battle Creek, Mich.
 Philadelphia, Pa.
 Troy, Ala.

GERMAN COMPOSITION.

- Berton, Margaret Frances, A.B. (*Boston Univ.*),
Teacher, High School, So. Manchester, Conn.,
 Blake, Lucy Edith, A.B. (*Smith Coll.*), *Teacher, Public School, Monroe*,
 Bruce, Geo Howard, Jr., A.B. (*Centre Coll.*), A.M.
(ibid.), *Instructor in Chemistry and Physics, Centre College, Danville, Ky.*,
- No. Cambridge.
 Brockton.

- Caldwell, Hugh Wright, *Principal, Chesapeake City High School*,
 Carter, Fred Louis, Jr., *Student, Harvard Univ.*,
 Chase, Margaret,
 Cloud, Mrs. Theodora Emma,
 Emerson, Margaret Ann, *Preceptress, Cazenovia Seminary*,
 Hamilton, Katharine, s.b. (*Eureka Coll.*), *Teacher, Public Schools, Decatur, Ill.*,
 Locke, Aurilla Maria, *Teacher, Public School, Brooklyn, N. Y.*
 Sanford, Adelaide Benton, b.l. (*Smith Coll.*),
Teacher of German, Boardman High School,
 Scott, Clara Louise, *Teacher, Public School*,
 Taylor, Mollie Pearl, b.l. (*Knox Coll.*), *Assistant Principal, Teacher of Latin and German, Aledo, Ill.*,
 Thomas, Helen M., *Teacher, Walnut Hill Preparatory School, Natick*,
 Way, Ida Hollingsworth, m.e. (*Millersville State Normal*), *Teacher, M. E. Penn.*
 Wendt, Gesine Louise, *Teacher of German, High School, Mamaroneck, N. Y.*
 Westbrook, Mrs. Franziska Abeken, *Teacher of German, Adelphi Academy*,
 Whiteside, Donald Grant, s.b. (*Coll. of the City of New York*), *Tutor, College of the City of New York*,
 Liberty Grove, Md.
 Cambridge.
 Belmont.
 Harrisburg, Pa.
 Cazenovia, N.Y.
 Harristown, Ill.
 Rahway, N.J.
 New Haven, Conn.
 Brooklyn, N.Y.
 Woodhull, Ill.
 Greeley, Colo.
 Pocopson, Pa.
 Larchmont, N.Y.
 Brooklyn, N.Y.
 New York, N.Y.

GERMAN 2.

- Adams, Lula Giralda, p.h.b. (*Wesleyan Coll.*),
Teacher of French and German, High School,
 Arnold, Frank Russell, a.b. (*Bowdoin Coll.*),
Teacher of French and German, Franklin School, Cincinnati, O.,
 Arnold, Louis Wales, a.b. (*Tufts Coll.*), *Head of Department of Modern Languages, Holyoke High School*,
 Chase, Thomas Herbert, a.b. (*Haverford Coll.*)
 (*Harvard Univ.*), *Head Master, Oakwood Seminary*,
 Daniels, Martha Esther, *Teacher, Public School*,
 Wilson, Jeannette Blaikie, *Teacher, High School*,
 Brookline.
 Braintree.
 Braintree.
 Union Springs, N.Y.
 Somerville.
 Waltham.

FRENCH 1.

- Cahal, Dee, *Tutor*,
 Dutton, Emily Helen, A.M. (*Radcliffe Coll.*), A.B.
 (*Mt. Holyoke Coll.*), *Instructor in Latin*,
Vassar College, Poughkeepsie, N. Y.
 Fellows, Abby Maria, *Principal of Schools*.
 Griffin, Emma Frances, *Principal, Raymond High*
School,
 Hudnall, Richard Henry, A.M. (*Univ. of Virginia*),
 PH.D. (*Univ. of Leipzig*), *Professor of English*
and History, Virginia Polytechnic Institute
(A. & M. College),
 Huston, Minnie Martha, *Teacher, Belmont Gram-*
mar School,
 Jackson, Martha, *Student, Emerson College of*
Oratory, Boston,
 Sephton, Cecilia Hilda, *Student*,
 Treat, Clarence Bell, *Principal, High School*,
 Vicente, Leonides, A.B. (*Univ. of Havana*), *Teacher*,
 Nashville, Tenn.
 S. Framingham.
 Ipswich.
 Epsom, N.H.
 Blacksburg, Va.
 Philadelphia, Pa.
 Cambridge.
 Roxbury.
 E. Hampton, Ct.
 Cienfuegos, Cuba.

FRENCH 2.

- Austin, Ellen Augusta,
 Bigelow, Mrs. Fannie W., *Teacher, Commonwealth*
Ave. School,
 Breed, Clara Maria,
 Bryan, Mrs. Jennie M., *Teacher, High School, Madi-*
sonville, O.,
 Carleton, Lena Bacon, *Teacher, Perley Free School*,
Georgetown, Mass.
 Critchlow, Frank Linley, A.B. (*Princeton Univ.*),
 A.M. (*ibid.*), *Student, Johns Hopkins Univ.*,
 Curtis, Grace Eleanor, *Assistant, Grammar School*,
Newton,
 Emmerich, Maria Anna Elizabeth, *Teacher of*
French and German, Mary Baldwin Seminary,
 Johnston, Henry, A.M. (*Harvard Univ.*),
 Lovell, Charlotte Helen, A.B. (*Radcliffe Coll.*),
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 Shanon, Henriette McIntosh,
 Todd, Sarah Alice, *Student, Miss Wheeler's School*,
 Vinal, Leonora, A.B. (*Radcliffe Coll.*), *Teacher*,
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 Boston.
 Boston.
 Lynn.
 Cincinnati, O.
 Haverhill, N.H.
 E. Northfield.
 Auburndale.
 Staunton, Va.
 Harding.
 Pittsburg, Pa.
 Providence, R.I.
 Somerville.

- Whithed, Gratia Eaton, A.B. (*Columbia Univ.*),
Teacher, Kent Place School, Summit, N.J., No. Cambridge.
 Wilson, Jeannette Blaikie, *Teacher, High School*, Waltham.
 Zimmerman, Elsa Agnes, *Private Teacher and*
Substitute, German and Elementary French,
Miss Ive's School, Dorchester, Roxbury.

SPANISH.

- Brown, Mrs. Rebecca Lewis, Jamaica Plain.
 Johnson, Mary Roosevelt, Sag Harbor, N.Y.
 Locke, Evelyn Jane, *Principal, Shepard School*, No. Cambridge.
 McCarthy, Denis Aloysius, *Associate Editor, Sacred*
Heart Review, Boston, E. Cambridge.
 McGawley, John Ernest, A.B. (*Harvard Univ.*),
Student, Harvard Law School, Cambridge.
 Morris, Evelyn Catharine, *Teacher*, So. Boston.
 Morris, Mary T., So. Boston.
 O'Neill, Mary Elizabeth, *Teacher, Washington All-*
ston School, Boston, Cambridge.
 O'Reilly, Annie Catharine, *Teacher, Ticknor School*, So. Boston.
 Smith, Carrie Florence, *Teacher, Public Schools*, Cambridgeport.
 Tower, Moses Binney, Auburndale.

ROMAN HISTORY.

- Bernd, Florence, A.B. (*Vassar Coll.*), *Junior Class*,
Gresham High School, Macon, Ga.
 Blackford, Gay Robertson, *Teacher in Primary*
Department, Phillips and West School for
Girls, Norfolk, Va., East Orange, N.J.
 Bowman, Georgetta, A.B. (*Indiana Univ.*), *Teacher*
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 Carter, Jacob Wolfe, A.B. (*Baylor Univ.*), *Pro-*
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 Cloud, Charles Burleigh, M.E. (*West Chester Nor-*
mal School), *Teacher, High School*, Harrisburg, Pa.
 Crowther, Elizabeth, Ph.B. (*Univ. of Chicago*),
Assistant in History, Mt. Holyoke College, So.
Hadley, Smiths.
 Dimond, Miriam Esther, S.B. (*Bethany Coll.*),
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 Gill, Emma Frances, *Teacher of History, High*
School, Medford.

- Harris, James Raymond, s.B. (*Fisk Univ.*), *Teacher*,
Central High School,
 Louisville, Ky.
- Locke, Mary Stoughton, A.B. (*Smith Coll.*), A.M.
 (*Radcliffe Coll.*), *Teacher*, *Miss Folsom's and*
other Private Schools, *Boston*,
 Westwood.
- McGill, Margaret, A.B. (*Mt. Holyoke Coll.*), *Assis-*
tant Teacher, *Melrose High School*,
 Dover.
- Owen, Amelia Lucy, A.B. (*Smith Coll.*), *Teacher*,
Classical School for Girls,
 Boston.
- Paine, Emily Florence (*Mount Holyoke Coll.*),
Teacher of History, *Miss Spence's School for*
Girls,
 New York, N.Y.
- Paxson, Frederic Logan, s.B. (*Univ. of Pennsyl-*
vania), *Instructor in History*, *Blees Military*
Academy, *Macon, Mo.*,
 Philadelphia, Pa.
- Rhetts, Harriett Caspar, A.M. (*Indiana Univ.*),
Teacher of History, *Manual Training High*
School, *Indianapolis, Ind.*,
 Salem, Ind.
- Scott, Edmund Daniel, A.M. (*Yale Univ.*), *Head*
Classical Department, *High School*,
 Holyoke.
- Stivers, Grace Helen, *Teacher of History and Eng-*
lish, *Steele High School*,
 Dayton, O.
- Zeiders, Katherine Minsker, *Teacher*, *High School*,
 Harrisburg, Pa.

AMERICAN HISTORY.

- Arnold, Isabel S., *Principal*, *Seminary*,
 Plainfield, N.J.
- Barry Mary E., *Teacher*, *Township High School*,
 Joliet, Ill.
- Brainard, Albion Hale, A.M. (*Colby Univ.*), *Sub-*
Master, *English High School*,
 Lynn.
- Brinson, Amanda, *Teacher*, *Public Schools*,
 Xenia, O.
- Burks, Mrs. Ria Mounger, A.B. (*Wesleyan Coll.*),
Instructor of History, *Wesleyan College*,
 Macon, Ga.
- Calvin, Florence, A.B. (*Allegheny Coll.*), *Teacher*,
 Meadville, Pa.
- Cassidy, Elizabeth, s.B. (*Kentucky State Coll.*),
Teacher,
 Lexington, Ky.
- Childs, Mary Louise, *Teacher of History and Civics*,
Township High School,
 Evanston, Ill.
- Corbishley, Harriet Thomas, *Principal*, *Fillmore*
School,
 Port Huron, Mich.
- Elliot, Harry Stanton, *Student*, *Harvard Univ.*,
 New York, N.Y.
- Feustel, Edith Sarah, *Teacher*, *Public School*,
 So. Hadley Falls.
- Haggerty, Emma Alice, *Principal*, *Public Schools*,
 Bradford, Pa.

Herron, Agnes, <i>Teacher, Public School,</i>	Cleveland, O.
Howell, Amanda Galbraith, <i>Teacher, Central High School,</i>	Shreveport, La.
Johnson, Samuel Oscar, A.B. (<i>State Univ., Louisville, Ky.</i>), <i>Method Teacher, Normal, Public School,</i>	Louisville, Ky.
Lee, Katherine, <i>Teacher, Public School, Kearny, N.J.,</i>	Newark, N.J.
Magay, Elizabeth Stewart, <i>Teacher of French and History, Weymouth High School,</i>	Cambridge.
Meek, Charles Simpson, A.B. (<i>Univ. of Indiana</i>), <i>Principal, High School,</i>	Terre Haute, Ind.
Morse, Irene May, A.M. (<i>Wesleyan Univ.</i>), <i>Professor of History and French, University of Wyoming,</i>	Laramie, Wyo.
Paul, Samuel Babcock, <i>Principal, Walnut Square School,</i>	Haverhill.
Prichard, Julia Elizabeth,	Portsmouth, O.
Smith, Mary Alice, <i>Teacher, Public Schools,</i>	Baltimore, Md.
Smith, Catherine Beatrice, <i>Teacher, Eliot Public School,</i>	St. Louis, Mo.
Smith, Mary Shannon, <i>Teacher of History, High and Grammar Schools,</i>	Lee.
Stanley, Anne Abernethy, <i>Critic Teacher, Illinois State Normal Univ.,</i>	Bloomington, Ill.
Turner, Morris Kimble, <i>Teacher, Grammar School,</i>	Lykens, Pa.

CIVIL GOVERNMENT.

Alfonso, Lorenzo Sanchez, LL.B. (<i>Univ. of Havana</i>), <i>Member Board of Education, Artemisa Pinar del Rio,</i>	Havana, Cuba.
Baldwin, James Henry, <i>Student, Boston Univ. Law School,</i>	Dorchester.
Chittenden, Caroline Elizabeth, L.B. (<i>Oberlin Coll.</i>), <i>Instructor in History, Foochow College, China,</i>	Boston.
Fairfield, Mildred Britton, <i>Instructor and Supervisor, People's University Extension Society of Greater New York,</i>	New York, N.Y.
Flisch, Julia Anna, <i>Teacher of History, Georgia Normal and Industrial College,</i>	Milledgeville, Ga.
Gilligan, Anna Teresa, <i>Teacher, Public School,</i>	New York, N.Y.

- Granger, Ruth Elizabeth, *Teacher of Grammar School*, Brooklyn, N.Y.
- Lucas, Frances Henderson, A.B. (*Wellesley Coll.*), *Instructor in History, Emma Willard School, Troy, N.Y.*, Cleveland, O.
- Patten, Frank Chauncy, *Librarian, Public Library*, Helena, Mont.
- Prentiss, Elizabeth Barston, *Professor of European History, Mount Holyoke College, So. Hadley*, Langdon, N.H.
- Robinson, Alice Leavitt, A.B. (*Mount Holyoke Coll.*), *Teacher, High School, Stoneham*, Winchester.
- Smith, Jane Bancroft, *Teacher of History, Halsted School, Yonkers, N.Y.*, Williamstown.

PSYCHOLOGY 1.

- Bigler, John Fremont, A.B. (*Grove City Coll.*), *Principal, State Normal School*, Edinboro, Pa.
- Castroverde, Magdalena Pardo de, *Teacher*, Havana, Cuba.
- Conway, Mary Vivian, A.B. (*Wilson Coll.*), *Teacher of English and Latin, Chambersburg, Pa.*, Fredericksburg, Va.
- Duggan, Margaret Powers, *Teacher, Public School*, New York, N.Y.
- Goodwin, Frank Wilbur, A.M. (*Grove City Coll.*), *PH.D. (ibid.), Superintendent Training Department, State Normal School*, Edinboro, Pa.
- Hannahs, Elizabeth Helen, *PH.D. (Illinois Wesleyan Univ.), Teacher of Psychology, State Normal College*, Albany, N.Y.
- Heller, Regenia Rose, *Teacher, Normal Training School*, Detroit, Mich.
- Hofer, Elizabeth Josephine, *Teacher, Public School*, New York, N.Y.
- Houghton, Henry Clarke, M.D. (*Univ. of New York*), *Professor of Otology, College of the New York Ophthalmic Hospital*, New York, N.Y.
- Snell, Clifton Alden, *Superintendent of Schools, Cottage City*, Hingham.
- Stafford, Elizabeth, *Teacher, Primary School*, Lawrence.
- Thompson, Frank Victor, A.B. (*St. Anselm's Coll.*), *Principal, Wetherbee Grammar School*, Lawrence.
- Townley, Grace Eleanor, *Teacher of Drawing, New York City*, Mt. Vernon, N.Y.
- Walker, Alice Landon, *Principal, Graded School*, Walkerton, Va.
- Whitehall, Frank Makepeace, Brooklyn, N.Y.
- Williams, Jennie Dolores, *Teacher, Public School*, New York, N.Y.
- Wright, Edgar M., A.B. (*Univ. of Nashville*), *Professor of Pedagogy, State Normal College*, Troy, Ala.

PSYCHOLOGY 2.

- Angier, Roswell Parker, A.B. (*Harvard Univ.*),
Student, Harvard Univ., Allston.
- Bigler, John Fremont, A.B. (*Grove City Coll.*),
Principal, State Normal School, Edinboro, Pa.
- Burton, Harriet Wright, PH.B. (*Illinois Wesleyan Univ.*),
Teacher of English, Woodside High School, New York City, Albany, N.Y.
- Castroverde, Magdalena Pardo de, *Teacher*,
 Havana, Cuba.
- Conway, Mary Vivian, A.B. (*Wilson Coll.*), *Teacher*,
Latin School, Chambersburg, Pa. Fredericksburg, Va.
- Duggan, Margaret Powers, *Teacher, Public School*,
New York, Deep River, Ct.
- Goodwin, Frank Wilbur, PH.D. (*Grove City Coll.*),
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- Hannahs, Elizabeth Helen, PH.D. (*Illinois Wesleyan Univ.*),
Teacher of Psychology, State Normal College, Albany, N.Y.
- Heller, Regenia Rose, *Teacher, Normal Training School*,
 Detroit, Mich.
- Hofer, Elizabeth Josephine, *Teacher, Public School*,
 New York, N.Y.
- Houghton, Henry Clarke, M.D. (*Univ. of New York*),
Professor, College of the New York Ophthalmic Hospital,
 New York, N.Y.
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- Townley, Grace Eleanor, *Teacher of Drawing, New York City*, Mt. Vernon, N.Y.
- Walker, Alice Landon, *Principal, Graded School*,
 Walkerton, Va.
- Williams, Jennie Dolores, *Teacher, Public School*,
 New York, N.Y.

EDUCATION 1.

- Alfonso, Lorenzo Sanchez, LL.B. (*Univ. of Havana*),
Member Board of Education, Artemisa, Pinar del Rio,
 Havana, Cuba.
- Avery, Fannie Louise, *Critic, Normal School*,
 Brockport, N.Y.
- Barwood, Lydia Mary, *Teacher, Grammar School*,
 Brooklyn, N.Y.
- Benedict, Florence Rosetta, S.B. (*Harriman Coll., Tenn.*), PH.B. (*ibid.*), *Assistant, Junior Department, School for Boys*,
 Washington, D.C.

- Bickford, Charles Wilmot, A.B. (*Dartmouth Coll.*),
Superintendent of Schools, Manchester, N.H.
- Bivins, John Addison, *Principal, Public School*,
 Charlotte, N.C.
- Bledsoe, John Francis, A.B. (*Howard Coll.*), A.M.
 (*Gallaudet Coll.*), *Principal, School for Colored
 Blind and Deaf*, Baltimore, Md.
- Carver, Ellen, *Teacher, Dillaway Grammar School*,
 Boston.
- Castroverde, Magdalena Pardo de, *Teacher*,
 Havana, Cuba.
- Chittenden, Caroline Elizabeth, L.B. (*Oberlin Coll.*),
*Instructor in History, Foochow College, Foo-
 chow, China*, Boston.
- Corlew, Rufus Edward, A.B. (*Brown Univ.*), *Super-
 intendent of Schools, Wayland, etc.*, Cochituate.
- Coxe, George William, *Principal of High School*,
 Wanamie, Pa., Alden Station, Pa.
- Cutler, Nathaniel A., A.B. (*Amherst Coll.*), *Prin-
 cipal, High School*, Norwood.
- Foster, Mary Chisholm, *Dean, Rust University*,
Holly Springs, Miss., Newtonville.
- Gould, Romeo, A.B. (*Pomona Coll.*), *Principal*,
Public Schools, Enfield, N.H., Lebanon, N.H.
- Granger, Ruth Elizabeth, *Teacher, Grammar
 School*, Brooklyn, N.Y.
- Gurney, Herbert Reed, A.B. (*Bowdoin Coll.*), *In-
 structor in English, Riverview Academy*, Poughkeepsie, N.Y.
- Holmes, Isabel Bartow, *Teacher, Grammar School*,
 Brooklyn, N.Y.
- Iffa, Florence Edith, *Teacher, Grammar School*,
 Brooklyn, N.Y.
- Latimer, Henry Randolph, Ph.B. (*Illinois Wesleyan
 Univ.*), *Teacher, Maryland School for Colored
 Blind and Deaf*, Baltimore, Md.
- Lucas, William Hardin, A.B. (*Kentucky Univ.*),
Principal, High School, Paris, Ky.
- Maclachlan, Annie Elton, *Teacher, Public School*,
 Brooklyn, N.Y.
- Mahoney, Alice Lillian, *Teacher, Grammar School*,
 Anaconda, Mont.
- Mahoney, Kate, *Principal, Public School*,
 Troy, N.Y.
- Malleon, Fanny Mabel, *Teacher, Grammar School*,
 Brooklyn, N.Y.
- Mason, Wallace Edward, A.B. (*Bowdoin Coll.*),
Principal, High School, Leominster.
- Mayer, Arthur Thomas, *Teacher, Public School*,
New York, N.Y., Corona, N.Y.
- Mendenhall, Clara, *Principal, Teachers' Training
 School*, Wilmington, Del.
- McLane, Charles Lourie, S.B. (*Valparaiso, Ind.,
 Coll.*), *Teacher, Superintendent City Schools*,
 Fresno, Cal.

McNulty, Anna Augusta, <i>Teacher, Public Schools,</i>	New York City.
Morrison, Adelbert Harland, C.E. (<i>Tufts Coll.</i>),	
<i>Master, Edward Devotion Schools, Brookline,</i>	Lawrence.
O'Leary, Wesley Alvah, S.B. (<i>Dartmouth Coll.</i>),	
<i>Sub-Master, High School, Portsmouth, N.H.,</i>	Southboro.
O'Neil, Ida Wachholder, <i>Teacher, Public School,</i>	Brooklyn, N.Y.
Owen, Bernard Wright, A.B. (<i>Brown Univ.</i>), <i>Principal, Tracy School,</i>	Lynn.
Peddy, Daisy, A.B. (<i>Wesleyan Coll., Macon, Ga.</i>),	
<i>Teacher, Grammar School,</i>	Newnan, Ga.
Rich, Ednah Anne, <i>Sloyd Teacher, Principal The</i>	
<i>Anna S. C. Blake Manual Training School,</i>	Santa Barbara, Cal.
Saxon, Gordon Joel, <i>Teacher, Washington School</i>	
<i>for Boys,</i>	Bernice, Pa.
Shinn, Francis Adin, A.M. (<i>Boston Univ.</i>), <i>Student,</i>	
<i>Harvard University, Graduate School,</i>	Newton.
Sims, William Fisher, A.B. (<i>Bates Coll.</i>), <i>Principal, Peters High School, Southborough,</i>	Litchfield, Me.
Small, Ernest William, A.B. (<i>Bates Coll.</i>), <i>Sub-</i>	
<i>Master, Field High School, Leominster,</i>	Biddeford, Me.
Snell, Clifton Alden, <i>Superintendent of Schools,</i>	
<i>Cottage City,</i>	Hingham.
Stacy, Orville Briggs, Jr., <i>Teacher, Public Schools,</i>	
<i>Borough of Queens, Greater New York,</i>	Lynbrook, L.I.
Thomas, Joseph Willard, A.B. (<i>Wesleyan Univ.</i>),	No. Gorham, Me.
Thompson, Victor Veranus, A.B. (<i>Bowdoin Coll.</i>),	
<i>Superintendent of Schools,</i>	Ashland.
Vann, Preston Stewart, A.B., L.B. (<i>Wake Forest</i>	
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<i>Chowan Baptist Female Institute,</i>	Murfreesboro, N.C.
Ventura, Victorio Ramon, <i>Teacher,</i>	Havana, Cuba.
Whitehall, Frank Makepeace,	Brooklyn, N.Y.
Williams, Charles Adams, A.B. (<i>Williams Univ.</i>),	
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Witte, Clementine Doretta, <i>Teacher, Public School,</i>	Brooklyn, N.Y.

EDUCATION 2.

Bickford, Charles Wilmot, A.B. (<i>Dartmouth Coll.</i>),	
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Bledsoe, John Francis, A.B. (<i>Howard Coll.</i>), A.M.	
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<i>for Colored Blind and Deaf,</i>	Baltimore, Md.

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 MacLachlan, Annie Elton, *Teacher, Public School*, Brooklyn, N. Y.
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 Mayer, Arthur Thomas, *Teacher, Public School, Borough of Queens, N. Y.*, Corona, N. Y.
 Meredith, Albert Barrett, A.B. (*Wesleyan Univ.*), *Instructor in Physics and Chemistry, High School*, Plainfield, N. J.
 Morrison, Adelbert Harland, C.E. (*Tufts Coll.*), *Master, Edward Devotion Schools, Brookline*, Lawrence.
 Robinson, Julia A., *Teacher, Cambridge*, No. Cambridge.
 Shinn, Francis Adin, A.M. (*Boston Univ.*), *Student, Harvard Graduate School*, Newton.
 Smith, Lilia Estelle, M.O. (*Emerson Coll. of Oratory*), *Teacher of Oratory, Emerson College of Oratory*, W. Somerville.
 Stacy, Orville Briggs, Jr., *Teacher, Public Schools, Borough of Queens, Greater New York*, Lynbrook, L. I.
 Vann, Preston Stewart, A.B., L.B. (*Wake Forest Coll.*), *Professor of Latin and Mathematics, Chowan Baptist Female Institute*, Murfreesboro, N. C.
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THEORY OF DESIGN.

- Aborn, Frank, S.B. (*Worcester Polytechnic Inst.*), *Drawing Master, Public Schools*, Cleveland, O.
 Allbright, Celeste Weed, *Interior Decorator*, Boston.
 Balch, Augusta Lauriat, *Supervisor of Drawing, Salem*, Somerville.
 Barri, Alice Hamilton, *Drawing Teacher, High School*, Springfield.
 Batchelder, Ernest Allan, *Supervisor of Drawing*, Adams.
 Billini, Adriana, *Teacher*, Havana, Cuba.
 Buss, Harriette Marie, *Teacher, Public School*, Cleveland, O.

Calkins, Mrs. Anne Marshall, Child, Katherine Blake,	New York, N.Y. Concord.
Churchill, Alfred Vance, A.M. (<i>Oberlin Coll.</i>), <i>Director of Department of Fine Arts, Teachers' College, Columbia University,</i>	New York, N.Y.
Condon, Harriet Dodge, <i>Superintendent of Drawing, Training School, So. Manchester, Conn.,</i>	Ipswich.
Couch, Mrs. Catherine Kyburg, <i>Supervisor of Drawing,</i>	Amherst.
Dearborn, Lillian May, <i>Supervisor of Drawing,</i>	Everett.
Dillon, Mrs. Julia Lester, <i>Teacher,</i>	Augusta, Ga.
Dyer, Mary Jane, <i>Supervisor of Drawing,</i>	Dover, Me.
Grant, Florence Lydia, <i>Drawing Teacher, Kansas State Agricultural College, Manhattan, Kan.,</i>	Waltham.
Graves, Louise Britton, <i>Student,</i>	Boston.
Greenwood, Cora, <i>Teacher of Drawing, Normal School,</i>	Providence, R.I.
Grover, Olive Lothrop, <i>Teacher,</i>	Chicago, Ill.
Hackett, Grace Edith, <i>Supervisor of Drawing, Palmer, Warren, and Brookfield,</i>	Worcester.
Hallowell, May, <i>Teacher, Painter,</i>	W. Medford.
Haynes, Emma Harriet (<i>Graduate of Mount Holyoke</i>), <i>Teacher of Drawing, Public School,</i>	Townsend Harbor.
Hooper, Grace, <i>Teacher of Drawing, Charlestown High School,</i>	Boston.
Howes, Victor, <i>Designer,</i>	Boston.
Irons, Foster Heathcote, <i>Supervisor, Manual Training, Saginaw, Mich.</i>	Toledo, O.
Kimball, Anna May, <i>Supervisor of Drawing, Hyde Park,</i>	Walnut Hill.
Lee, Laura, <i>Portrait Painter,</i>	Chelsea.
Leonard, William Jackson, <i>Artist,</i>	Hinsdale, N.H.
MacLean, Laura Bell, <i>Supervisor of Drawing, Haverhill,</i>	Newton.
Maguire, Annie Edith, <i>Student in Design,</i>	Brookline.
Marsh, Mrs. Marie Bigelow, <i>Teacher, Private School,</i>	Cambridge.
Matthews, Josephine Belle, <i>Teacher of Drawing,</i>	Worcester.
May, Edith Rogers, <i>Student, Art School, Art Museum, Boston,</i>	Brookline.
McLauthlin, Elizabeth Rena, <i>Supervisor of Drawing,</i>	Malden.
Morse, Sadie May, <i>Supervisor of Drawing, Newburyport,</i>	Lexington.
Murch, Marietta Shackford, <i>First Assistant, Mather School, Dorchester,</i>	Roxbury.

Murphy, Hermann Dudley, <i>Artist</i> ,	Boston.
Nelson, Mary Eliza, <i>Supervisor and Instructor of Drawing in Public Schools</i> ,	Irvington, N.J.
Plaisted, Zelpha Marilla,	Boston.
Pleadwell, Amy Margaret, <i>Supervisor Drawing, Andover</i> ,	Taunton.
Redmond, Margaret,	Philadelphia, Pa.
Reed, Grace Adelaide, <i>Supervisor of Drawing, Wayland</i> ,	W. Newton.
Rieber, Mrs. Winnifred,	Belmont, Cal.
Roberts, William Elmer, <i>Supervisor Manual Train- ing, Public Schools</i> ,	Cleveland, O.
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Sargent, Elisa A., <i>Editorial Dept., The Prang Educational Company</i> ,	Boston.
Sawyer, Julia Frances, <i>Teacher, Public School</i> ,	Spencer.
Schönberg, Irma von, <i>Teacher of German, Miss Chamberlayne's School</i> ,	Boston.
Schwindt, Annie Marie, <i>Teacher of Sewing</i> ,	Everett.
Smith, Harriet Frances, <i>Supervisor of Drawing, Spencer</i> ,	Worcester.
Soper, Mabel Browning, <i>Teacher of Drawing, Hamilton Hall School, Salem</i> ,	Waltham.
Spalding, Alice, <i>Teacher, Rhode Island Normal School</i> ,	Salisbury.
Strange, Ora, <i>Supervisor of Drawing</i> ,	Taunton.
Swan, Mrs. Eleanor Gould, A.B. (<i>Vassar Coll.</i>),	Cambridge.
Tarbell, Florence Lizzie, <i>Assistant Supervisor of Drawing</i> ,	Springfield.
Townsend, Flora Phillips, <i>Teacher of Drawing</i> ,	Bridgewater.
Trowbridge, Alexander Buel, S.B. (<i>Cornell Univ.</i>), <i>Professor of Architecture, Cornell University</i> ,	Ithaca, N.Y.
Turner, Jenny Avis, <i>Art Student</i> ,	Norfolk, Va.
Walker, Edgar Thomas Philip, <i>Student, Forster School</i> ,	Somerville.
Wentworth, Addie Eliza, <i>Teacher of Drawing, Grammar School, Springfield</i> ,	Melrose.
Wentworth, Emma Gertrude, <i>Pupil, State Normal School, Salem</i> ,	Cambridgeport.
Wentworth, Mary Sophia, <i>Principal's Assistant, Horace Mann School</i> ,	Melrose.
Wesselhoeft, Mary Fraser, <i>Teacher of Drawing, Miss Webster's Private School, Miss Kelley's</i> ,	Cambridge.

White, Adina Edmonia, <i>Wood Carver</i> ,	Cincinnati, O.
Vickery, Lilla May, <i>Supervisor of Drawing</i> ,	Lexington.
Young, Evangeline Wilson, <i>Principal, Houghton High School, Bolton</i> ,	Brighton.

THE TEACHING OF ELEMENTARY MATHEMATICS.

Barr, Jessie, <i>Teacher, Public School</i> ,	Brooklyn, N.Y.
Clark, Mary Luella, A.B. (<i>Mount Holyoke</i>), <i>Assistant Teacher, Fitchburg High School</i> ,	Worcester.
Fairlie, Agnes Edmund, A.B. (<i>Wellesley Coll.</i>),	Jacksonville, Fla.
Godfroy, Sadie Arabella, <i>Assistant, High School</i> ,	Athol.
Hanscom, Helen MacGregor, A.B. (<i>Colby Coll.</i>), <i>Teacher, Boston</i> ,	Malden.
Purington, Florence, s.b. (<i>Mount Holyoke Coll.</i>), <i>Instructor in Mathematics, Mount Holyoke College</i> ,	So. Hadley.
Thomas, Joseph Willard, A.B. (<i>Wesleyan Univ.</i>), <i>Teaching</i> ,	No. Gorham, Me.

ADVANCED ALGEBRA.

Bartlett, Sue Herron, <i>Teacher, High School</i> ,	Peoria, Ill.
Hazlett, James Howard, <i>Student</i> ,	Cambridge.
Pocknell, Marie, <i>Vice-Principal, Public School</i> ,	Jersey City, N.J.
Sabin, Mary Esther, <i>Teacher</i> ,	Evanston, Ill.
Schweizer, Henrietta,	Trenton, N.J.

SOLID GEOMETRY.

Carlton, Frank Carr, <i>Student, Harvard Univ.</i>	Salem.
Cuddeback, Olive, <i>Teacher, High School</i> ,	Paterson, N.J.
Dickinson, Harriet Stryker, <i>Teacher, High School</i> ,	Trenton, N.J.
Evans, Wilmot Roby, Jr., <i>Student, Harvard Univ.</i> ,	Everett.
Fitzsimmons, Harry Joseph, <i>Student, Harvard Univ.</i> ,	Jamaica Plain.
Grant, Ralph Hallam, <i>Student, Harvard Univ.</i> ,	Ipswich.
Hackett, Leon Abbott,	Auburndale.
Haines, Lena Ormelle, <i>Teacher, Intermediate School</i> ,	Lockport, N.Y.
Kennealy, Charles Ambrose, <i>Student, A. Hildreth Classical School</i> ,	Roxbury.
Lee, Joseph Howard, <i>Student, Harvard Univ.</i> ,	Boston.
Loring, Charles Raymond, <i>Student, Harvard Univ.</i> ,	Newton.
Palmer, John Lothair, <i>Student</i> ,	Newtonville.
Russell, Charles David, <i>Student, Harvard Univ.</i> ,	Watertown.
Spratt, Daniel Magone, <i>Student, Harvard Univ.</i> ,	Ogdensburg, N.Y.
Starkweather, Charles Huntington, Jr., <i>Student, Lawrenceville, (N.J.) School</i> ,	Chicago, Ill.

TRIGONOMETRY.

Adams, Charles Quincy, <i>Student, Harvard Univ.</i> ,	Jamaica Plain.
Beal, Albert Reynolds, <i>Student, Harvard Univ.</i> ,	New York, N.Y.
Clark, Francis Philip, <i>Student, Harvard Univ.</i> ,	Manchester.
Davis, John Boynton, <i>Student, Harvard Univ.</i> ,	Newtonville.
Dean, Paul Dudley, <i>Student, Harvard Univ.</i> ,	Boston.
Emerson, Elliot Shearer, <i>Student, Harvard Univ.</i> ,	Cambridge.
Grant, Ralph Hallam, <i>Student, Harvard Univ.</i> ,	Ipswich.
Haines, Lena Ormelle, <i>Teacher</i> ,	Lockport, N.Y.
Hazlett, James Howard, <i>Student</i> ,	Cambridge.
Johnson, Lester Gurney, <i>Student, Amherst College</i> ,	Natick.
Lawrence, George Campbell, <i>Student, Harvard Univ.</i> ,	
Macleod, William Preston, <i>Student, Harvard Univ.</i> ,	Evanston, Ill.
Parker, Walter Adams, <i>Student, Harvard Univ.</i> ,	Cambridge.
Putnam, Eliot Thwing, <i>Student, Harvard Univ.</i> ,	Brookline.
Russell, Charles David, <i>Student, Harvard Univ.</i> ,	Roxbury.
Smith, George Kendrick, <i>Student</i> ,	Watertown.
Spratt, Daniel Magone, <i>Student, Harvard Univ.</i> ,	Boston.
	Ogdensburg, N.Y.

CALCULUS.

Collins, Patrick Henry, <i>Instructor in Mathematics, La Salle College</i> ,	Philadelphia, Pa.
Crosse, Shirley Robbins, <i>Student, Harvard Univ.</i> ,	Marshfield Hills.
Hanson, Arthur Taber, A.B. (<i>College of the City of New York</i>), <i>Teacher, Public Schools</i> ,	New York, N.Y.
Long, John William, <i>Student, Harvard Univ.</i> ,	Charlestown.
Mulvena, James Patrick, <i>Professor of Latin and Greek, La Salle College</i> ,	Philadelphia, Pa.
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ASTRONOMY.

Tracy, Martha Dunlap, A.B. (<i>Colby Coll.</i>), <i>Teacher in History and Natural Sciences</i> ,	Lawrence.
Trumbull, Mary, <i>Teacher of Mathematics, English High School</i> ,	Worcester.

SURVEYING.

Coleman, Lockett Gwin, <i>Student, Harvard Univ.</i> ,	New York, N.Y.
Cornell, Bailey J., <i>Student, Rhode Island College</i> ,	Croton, N.Y.
Spear, Le Roy Freeman, <i>Student, Harvard Univ.</i> ,	Walpole.
Tyler, Marshall H., <i>Instructor, Rhode Island Coll.</i> ,	Kingston, R.I.

SHOPWORK.

Cole, John Felt, A.B. (<i>Harvard Univ.</i>),	Somerville.
Ruland, Norman, A.B. (<i>Harvard Univ.</i>),	Brooklyn, N.Y.

ELEMENTARY PHYSICS.

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Allen, Belle Jane, L.B. (<i>Ohio Wesleyan Univ.</i>), <i>Student, Boston University Medical School</i> ,	Bellefontaine, O.
Ames, Clara Preston, S.B. (<i>Mass. Institute of Technology</i>), <i>Teacher, Mary A. Burnham Classical School, Northampton</i> ,	Boston.
Beals, Frederick Hall, A.B. (<i>Harvard Univ.</i>), <i>Teacher of Science, Worcester Academy</i> ,	Mt. Vision, N.Y.
Chandler, Elzura Ada, <i>Teacher of Science and History, High School</i> ,	Norwood.
Cornell, Ella Crosby, <i>Teacher, Public Schools</i> ,	Wilmington, Del.
Dempsey, John J., S.B. (<i>St. Francis Coll.</i>), <i>Teacher, Public School</i> ,	New York, N.Y.
Dimmick, Annie May, A.B. (<i>Wellesley Coll.</i>),	Montgomery, Ala.
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Finn, Jane Corwin, A.B. (<i>Wellesley Coll.</i>),	Vineland, N.J.
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Kimball, Ernest Robbins, <i>Student</i> ,	Somerville.
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Parsons, Ernst Mey, <i>Student, Harvard Univ.</i> ,	Lynn.
Pollard, Ethel, <i>Teacher, Moshers' Home Preparatory School</i> ,	New Bedford.
Pollard, Sidney Fisher, <i>Student, Richmond College</i> ,	Norfolk, Va.

- Pritchard, Sydna Ellen, A.B. (*Wellesley Coll.*),
 Rand, Philinda Parsons, A.B. (*Radcliffe Coll.*),
Teacher,
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 Lexington.
 Millbrook.
 Berlin, N.H.

ADVANCED PHYSICS.

- Allyn, Louis Benajah, *Teacher of Chemistry and Physics, High School*,
 Barteaux, James Eri, *Teacher*,
 Calhane, Daniel Francis, A.B. (*Harvard Univ.*),
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 Harney, Julia Claudine, *Model Teacher, Training School*,
 Pedroso, Carlos de, PH.D. (*Univ. of Paris*), *Professor of Science, Institute of Havana*,
 Rice, Emerson, A.M. (*Dartmouth Coll.*), *Teacher of Science, High School*,
 Seal, Alfred Newlin, S.B. (*Univ. of Pennsylvania*),
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- Warren.
 Truro, N.S.
 Haverhill.
 Charlottetown,
 [P.E.I.]
 Milton.
 Jersey City, N.J.
 Havana, Cuba.
 Hyde Park.
 Philadelphia, Pa.

ELEMENTARY CHEMISTRY.

- Adams, Norris Elwyn, A.M. (*Bates Coll.*), *Principal, High School*,
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 Buckingham, Eliza Willett,
 Burke, Robert Emmett, S.B. (*Harvard Univ.*),
Teacher,
 Cate, William Ervin, A.B. (*Harvard Univ.*), *Principal, Leicester Academy*,
 Chamberlain, Alice Demary, A.B. (*Radcliffe Coll.*),
- Saugus.
 Hillsdale, Mich.
 Lexington.
 So. Boston.
 Wolfboro, N.H.
 Cambridge.

- Dial, Stephen Trimble, A.M. (*Ohio Wesleyan Univ.*),
 PH.D. (*Syracuse Univ.*), *Superintendent, Public Schools,*
 Green, John, *Student, Harvard Univ.*,
 Hall, Fannie Lee, *Teachers' College, Columbia Univ., Teacher of Domestic Science,*
 Hunt, Abby Otis, A.B. (*Wellesley Coll.*),
 Jenney, Charles, A.B. (*Harvard Univ.*), *Principal, Belmont High School,*
 Kelley, Julia Abbie, *Teacher of Mathematics and Natural Science, High School,*
 MacLauchlan, Margaret, *Teacher, High School,*
 Sampson, Ethel Vaughan, A.B. (*Radcliffe Coll.*),
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 Terrill, Bertha Mary, A.B. (*Mt. Holyoke Coll.*),
Abbot Academy, Andover, Mass.
 Wadleigh, Edna Blanche, A.B. (*Smith Coll.*),
Teacher, Hannah Moore Academy, Reisters-town, Md.,
 Weathers, Luther Calvin, *Real Estate,*
 Weitzel, Nicholas Thomas, S.B. (*Purdue Univ.*),
Student,
 Wheeler, David Stone, A.B. (*Boston Univ.*), *Student,*
- Lockland, O.
 Boston.
 New York, N.Y.
 Braintree.
 Brookline.
 Rutland, Vt.
 Hackensack, N.J.
 Newtonville.
 Morrisville, Vt.
 E. Berkshire, Vt.
 N. Woburn.
 Frankfort, Ky.
 Gloucester.

ADVANCED CHEMISTRY.

- Henares, Francisco, PH.D. (*Univ. of Havana*),
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 Hoxton, Llewellyn Griffith, A.M. (*Univ. of Virginia*), *Teacher, Washington, D.C., School,*
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 Sawyer, Mary Alma, *Teacher, Western College,*
 Stocker, John Henry, S.B. (*Cornell Univ.*), *Assistant in Physics and Chemistry, Boys' High School,*
- Havana, Cuba.
 Alexandria, Va.
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 Havana, Cuba.
 Oxford, O.
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ORGANIC CHEMISTRY.

- Beeson, Jasper Luther, PH.D. (*Johns Hopkins Univ.*), *Professor of Chemistry and Physics, Georgia Normal and Industrial College*, Milledgeville, Ga.
- Coffin, Mary Elizabeth, PH.D. (*Univ. of New York*), *Vice Principal of High School and Instructor in Science*, Asbury Park, N.J.
- Fuller, Howard, *Philadelphia Textile School*, Jamaica Plain.
- Gottschalk, Victor Hugo, S.B., M.S. (*Missouri School of Mines*), *Instructor in Chemistry, Missouri School of Mines, Rolla, Mo.* St. Louis, Mo.
- Huntington, Ellen Alden, *School of Housekeeping, Boston*, Hartford, Conn.
- Jones, John Paul, *Student, Philadelphia Textile School*, Harrisburg, Pa.
- Perkins, Albert Sanborn, A.B. (*Harvard Univ.*), *Junior Master, High School, Dorchester*, Hyde Park.
- Smith, Lillie Collamore, *Teacher, Springfield Public Schools*, Boston.
- Van Arsdale, May Belle, *Instructor in Physical Science, Horace Mann School, New York, and Assistant in Physical Science, Teachers' College, Columbia University*, New York, N.Y.
- Woodruff, Frank Otis, PH.B. (*Brown Univ.*), A.M. (*Tabor Coll.*), *Instructor in Physics and Chemistry, Tabor College, Iowa*, Needham.

BOTANY.

- Barrett, Jessie Gertrude, *Teacher, Oxford School*, Malden.
- Bassity, Joseph Francis, *Student, Harvard Univ.*, Boston.
- Blake, Benjamin Sewall, *Student, Harvard Univ.*, Auburndale.
- Brenzinger, Augusta Carolina, *Teacher, Public School*, New York, N.Y.
- Buswell, Marion Emily, *Assistant in Pittsfield, N.H., High School*, Littleton, N.H.
- Carter, Fred Louis, Jr., *Student, Harvard Univ.*, Cambridge.
- Duffin, Simon Edward, *Student, Harvard Univ.*, So. Boston.
- Foster, Albert Volney, *Student, Harvard Univ.*, Evanston, Ill.
- Hewitt, Morgan Francis, *Student, Harvard Univ.*, Wenasha, Wis.
- Lawrence, George Campbell, *Student, Harvard Univ.*, Evanston, Ill.

Long, Catherin Isabel, <i>Teacher, Grammar Department, Neptune Township,</i>	Hammonton, N.J.
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Peterson, Sidney, A.B. (<i>Harvard Univ.</i>), <i>Teacher, Classical High School,</i>	Worcester.
Phelps, Martha Emma, A.B. (<i>Smith Coll.</i>), <i>Teacher,</i>	Northampton.
Rea, Ethelwyn Augusta, A.B. (<i>Boston Univ.</i>), <i>Professor of Greek and Modern Languages, Greenville and Tusculum College, Tenn.,</i>	Malden.
Reekie, Clara Butler, <i>Teacher, Normal Training School,</i>	Detroit, Mich.
Rogers, Leo Abraham, <i>Student, Harvard Univ.,</i>	Jamaica Plain.
Sheehan, Anna Marie, <i>Teacher of Elementary Science, Eliot School, Boston,</i>	No. Cambridge.
Sleeper, Flora Etta, <i>Assistant in Materia Medica and Pharmacognosy, Mass. College of Pharmacy,</i>	Fitchburg.
Taft, Ruth, <i>Student, Radcliffe College,</i>	Cambridge.
Waite, Margaret Laura, <i>Private Teacher,</i>	Cambridge.
Walsh, Richard McClennan, <i>Student, Harvard Univ.,</i>	Roxbury.
Williams, William Taylor Burwell, A.B. (<i>Harvard Univ.</i>), <i>Principal, Public School,</i>	Indianapolis, Ind.
Wood, Mary,	Eastport, Me.

GEOLOGY S 1

Adams, George Allen, <i>Principal, Grammar School, No. Kingstown, R.I.,</i>	Wickford, R.I.
Adams, John William, <i>Student, Polytechnic Institute,</i>	Worcester.
Allen, Herbert Ira, <i>Sub-Master, Deering High School,</i>	Portland, Me.
Ayres, Florence, <i>Teacher, High School, Kearny, N.J.,</i>	Bridgeton, N.J.
Bard, Darsie Campbell, <i>Student, Harvard Univ.,</i>	Woodlawn, Ore.
Barry, Loretto Frances, <i>Student, Radcliffe College,</i>	Youngstown, O.
Cannon, George Lyman, A.M. (<i>Denver Univ.</i>), <i>Instructor in Geology, High School,</i>	Denver, Colo.
Clark, Austin Hobart, <i>Student, Harvard Univ.,</i>	Newtonville.
Colson, Harold Roy, <i>Assistant, Harvard Observatory,</i>	Cambridge.

- Dean, Paul Dudley, *Student, Harvard Univ.*, Boston.
 Duffin, Simon Edward, *Student, Harvard Univ.*, So. Boston.
 Eaton, Lelia Sophia, A.B. (*Wellesley Coll.*), Natick.
 Emerson, Elliot Shearer, *Student, Harvard Univ.*, Cambridge.
 Goldman, Marcus Isaac, *Student, Harvard Univ.*, New York, N.Y.
 Leatherbee, Clifton Felton, *Student, Harvard Univ.*, W. Newton.
 McFadon, John William, *Student, Harvard Univ.*, Quincy, Ill.
 Manning, John Brown, *Student, Harvard Univ.*, Wollaston.
 Maury, Antonia Coetana de Paiva Pareira, A.B. (*Vassar Coll.*), *Teacher of Science, St. Mary's Hall, Burlington, N. Y.*, Ithaca, N.Y.
 Merritt, Walter Gordon, *Student, Harvard Univ.*, Danbury, Conn.
 Reilly, William Griffin, *Student, Harvard Univ.*, Watertown.
 Richards, Francis Gragg, *Student, Harvard Univ.*, Dedham.
 Snell, Edwin Fitzson, *Clergyman*, W. Newton.
 South, George Washington, Jr., *Student, Harvard Univ.*, Philadelphia, Pa.
 Turner, Kate Estelle, *Assistant Principal, Erasmus Hall High School, Brooklyn, N. Y.*, Brooklyn, N.Y.
 Wadsworth, Alexander Harris, *Student, Harvard Univ.*, Lawrence.
 Wallin, Caroline Elizabeth, A.B. (*Wellesley Coll.*), *Assistant Principal, High School*, Matteawan, N.Y.
 Waugh, Minnie Florence, *Teacher, Brockton High School*, Portland, Me.
 Wilson, George Bennett, A.B. (*Harvard Univ.*), Jamaica Plain.

GEOLOGY S 2.

- Armstrong, George Peters, *Student Harvard Univ.*, Belmont.
Superintendent of Schools, Washington, D.C.
 Lord, E. C. E., PH.D., *Professional Geologist*, New York, N.Y.
 Pultz, John Leggett, *Student, Harvard Univ.*,
 Whitnall, H. O., PH.B., *Graduate Student, Colgate Univ.*, Syracuse, N.Y.

GEOGRAPHY.

- Allen, William Harvey, PH.D. (*Univ. of Pennsylvania*), *Instructor, University of Pennsylvania*, Philadelphia, Pa.
 Armstrong, May Chivia, *Teacher, Normal School*, Detroit, Mich.
 Bayley, Anna Florence, *Assistant Teacher, Lewis Grammar School*, Roxbury.

- Bennett, Joseph Herbert, *Principal, Grammar School*,
 Billings, Mrs. Emma Ellis, *Principal, Miner School*,
 Bowen, Archer Clinton, *Principal, Park St. Grammar School, W. Springfield*,
 Burnham, Narcissa, *Teacher*,
 Cannan, Effie, *Teacher, Public Schools*,
 Clayton, Harriet, *Special in Geography, Grammar School, E. Orange, N.J.*,
 Clock, Alice, *Teacher, Grammar School*,
 Cogger, Maria Teresa, *Teacher, Primary School*,
 Dowling, Ruth Elizabeth, *Teacher of Geography, State Normal School*,
 Ellis, Annie Claffin, *Teacher, Primary Department, Plainfield (N.J.) Seminary*,
 Gray, Temperance, *Head of Department, Public School*,
 Hart, Charles, *Teacher of Mathematics, Business High School*,
 Heller, Hannah, *Teacher, Trowbridge School*,
 Hollis, Everett Newton, *Principal, Bates Grammar School*,
 Howard, Elinor Gertrude, *Teacher, High School*,
 Hugér, Susan A., *Primary Teacher, Clifton School*,
 Jackson, Adelaide Austen, *Student, Teachers' College, Columbia University*,
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 No. Adams.
 Adams.
 Beverly.
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 Brooklyn, N.Y.
 Lawrence.
 Moorhead, Minn.
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 Brooklyn, N.Y.
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 Detroit, Mich.
 So. Weymouth.
 Hoboken, N.J.
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